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STUDIES ON BRUCELLOSIS IN MINNESOTA

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BRUCELLOSIS is an endemic disease of livestock, especially cattle, swine and goats. In Minnesota, it is the most common infection of animals transmitted to man. The disease derives its name from Sir David Bruce,⁶ a British Army surgeon, who first identified the causative microbes toward the end of the last century on the Island of Malta. The human disease has also been designated as Malta fever and undulant fever.

In an area like Minnesota, this infection not only is of serious concern to the health of the people, but the disease is costly to the livestock and dairy industries. It is estimated that 4 to 5 per cent of the cattle in the state have brucellosis, and that 2 to 3 per cent of the hogs are infected. Brucellosis is one of the most common causes of abortion in cattle and in swine. Wherever this disease occurs in livestock, the reproduction of animals is decreased. In cattle, the infection also localizes in the udder so that milk production is reduced. With 20 per cent of the annual cash income of the farmers in Minnesota derived from butter, it can be readily seen why brucellosis is of importance in the economy of the state. It has been calculated on a national level that brucellosis costs the cattle industry around \$100,000,000, annually.

It is difficult to estimate the number of hu-

man cases of brucellosis occurring in Minnesota because the disease can be insidious in its symptomatology, difficult to diagnose, and many mildly ill patients do not seek the advice of a physician. The number of recognized cases since the end of World War II has increased. Recent studies carried on at the University Hospitals indicate that in the rural population up to one-fourth of the people have been infected at some time in their lives.²⁵

The problem of brucellosis has not remained unrecognized in Minnesota. Many studies have been pioneered in this area. Investigations on the control of the disease in cattle and in swine have occupied the attention of a group in the Division of Veterinary Medicine in the School of Agriculture at the University of Minnesota, first, under the direction of the late Dr. C. P. Fitch, and now under Dr. W. A. Boyd. Participating in these efforts has been the Minnesota Livestock Sanitary Board under the leadership of Dr. R. L. West. Recognition was also given to the human aspects of brucellosis as long ago as 1913 when the late Dr. W. P. Larsen, Professor of Bacteriology at the University of Minnesota, and Dr. J. P. Sedgwick,¹⁴ former Professor of Pediatrics, reported evidence of the disease in the blood of infants, although the first proved human case of brucellosis was not established in Minnesota until 1927. The Minnesota State Department of Health, especially the Sections of Medical Laboratories and Preventable Diseases, has long been interested in attempts to recognize and prevent brucellosis in human beings.

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Against this rich background of traditional interest in brucellosis in Minnesota, investigations on human brucellosis were initiated in the Department of Medicine at the University Hospitals in 1937. These studies had their origin at the bedside of patients ill with suspected brucellosis. It soon became apparent that the disease was difficult to recognize and to diagnose correctly, and that specific treatment was lacking. Some of the observations that have been made will be summarized at this time. Certain outstanding features of the disease have commanded interest. First, have been investigations on the epidemiology of brucellosis, or the manner in which patients acquired the infection. Second, has been a study of the natural history of the illness in patients seen at the University Hospitals. In addition, various tissues have been examined in an effort to ascertain what reactions occur as a result of invasion of the body by the microorganisms. Such an inquiry has been directed not only to human patients, but to experimentally infected animals, where the reactions have been more precisely defined. Third, a critical analysis has been made of the diagnostic methods employed for recognizing human brucellosis. Fourth, has been an evaluation of specific therapy for human brucellosis, the results of which have yielded quite encouraging results to date.

Epidemiology of Brucellosis in Minnesota

There are three species of *Brucella* that cause disease in livestock and in human beings. The most invasive species is *Brucella melitensis*, which originally had the goat as its reservoir. Recent observations in Iowa have shown that *Br. melitensis* also infects hogs under natural conditions.¹³ A serious aspect of this finding is that an increasing number of human infections caused by *Br. melitensis* are being encountered in Iowa and in Minnesota. These cases due to *Br. melitensis* result from direct contact with infected swine, or their tissues. In Minnesota, practically all human illness due to *Br. melitensis* occurs in the southern part of the state, particularly in the counties adjacent to the Iowa border.¹⁰ The next most invasive species is *Brucella suis*, which has as its normal habitat the tissues of swine. Strains of *Br. suis* have invaded and localized in the udders of cattle, and human epidemics of brucellosis have been caused by the ingestion of unpasteurized cow's milk containing this species of brucella.^{2,8,12} In recent years, fewer and fewer cases of human

brucellosis in Minnesota have been caused by *Br. suis*. The least invasive species is *Brucella abortus* with cattle as its natural reservoir. While in general, *Br. abortus* causes a less severe disease than that due to *Br. melitensis* or *Br. suis*, nevertheless, a protracted and grave illness can be induced by *Br. abortus*, in which serious and even fatal complications can occur. In a collaborative study carried out between the Department of Medicine at the University Hospitals and the Laboratories and Section of Preventable Disease of the Minnesota State Department of Health, the etiology of 268 bacteriologically proved cases of brucellosis occurring in Minnesota between January 1, 1945, and June 30, 1948¹⁶ was determined as follows:

Species	No. Cases	Per cent
<i>Brucella abortus</i>	230	85.8
<i>Brucella melitensis</i>	22	8.2
<i>Brucella suis</i>	16	6.0

It is quite apparent that the great majority of human infections in Minnesota are due to *Br. abortus*.

Brucellosis is very rarely transmitted from human to human. The disease in Minnesota is acquired through direct contact with infected animals or their tissues or secretions, and by ingesting contaminated, unpasteurized milk or cream. The microorganisms enter small abrasions of the skin quite readily. Although there is experimental evidence indicating that brucellosis may be acquired through the respiratory tract following the inhalation of dust which contains viable organisms, there is still no clear-cut proof that this occurs under natural conditions.

In the collaborative epidemiologic study already referred to, it was found that about three-fourths of all proved cases of brucellosis occurred in males, and that three-fourths of these cases were in the third, fourth or fifth decade of life. There is no doubt that recognizable brucellosis in children under twelve years of age occurs much less frequently than in adults. Children appear to be more resistant to the infection. This study also revealed that approximately 75 per cent of all the cases of brucellosis in Minnesota resulted from direct contact with infected animals, or their tissues and secretions, while about 25 per cent were due to drinking unpasteurized milk. It should be emphasized that in whole milk, *Brucellae* appear in larger numbers in the cream fraction, and

that the disease is quite readily contracted by ingesting fresh cream in one form or another. This Minnesota study has emphasized quite clearly that at least 60 per cent of the cases were occupational in origin involving farmers as the largest single group, followed by meat-packing plant employees.

In summary, human brucellosis in Minnesota is due primarily to *Br. abortus* with three-fourths of the cases occurring in males. Approximately 75 per cent of the cases are caused by contact, and 25 per cent are due to the ingestion of unpasteurized milk. At least 60 per cent of the cases are occupational in origin with farmers constituting the largest single group, followed by meat-packing plant employees.

Natural History of Human Brucellosis

There is no question that a clinical description of brucellosis will depend upon the status of the population infected, and the species of brucella causing the disease. Thus, the over-all picture in a well nourished people infected with *Br. abortus* in Minnesota differs from that seen in undernourished Mexican Indians infected by *Br. melitensis*, and who are frequently suffering from other parasitic invasion. Acute brucellosis caused by *Br. abortus* is characterized by weakness, chilly sensations and fever, sweats, bodily aches and pain, headache and backache. Physical abnormalities may be absent in many cases, but when present include splenomegaly, and cervical and axillary lymphadenopathy. In general, the duration of the illness is less than 6 months, and many cases terminate in a state of well-being within a few weeks. Not infrequently, the acute phase of the illness is so mild the cause of the illness may be unrecognized. Acute brucellosis is most frequently misdiagnosed by being called "influenza" or an "unknown virus disease." In an occasional case, a mild but acute illness may be succeeded by a persistent state of ill health featured by a continual feeling of weakness, low-grade fever, mental and physical inertia, vague aches and pains, and mental depression. From time to time these smoldering cases of brucellosis are diagnosed as instances of psychoneurosis, neurasthenia or an anxiety state. Only 10 to 15 per cent of the cases in the Minnesota study fall into this category of chronic brucellosis, or an illness enduring for more than one year. It has been observed in a large number of patients having either psychoneurosis or an anxiety state that many have been

misdiagnosed as having chronic brucellosis on the basis of inadequate information, such as a positive skin test following the injection of brucella antigen. In an occasional patient, acute brucellosis may be followed by a post-infectious state of neurasthenia. But this is not specific for brucellosis, and occurs in other infectious diseases. The majority of cases of culturally proved chronic brucellosis studied at the University Hospitals whose illness extended beyond one year have been associated with demonstrable complications such as spondylitis, encephalomeningitis and endocarditis.^{24,29,30} Brucellosis does not cause human abortions any more frequently than other bacterial infections. Orchitis in the human is more frequently associated with infection due to *Br. melitensis* than to *Br. abortus*. Likewise, neurological complications, such as severe sciatica, are encountered much more often in patients with illness due to *Br. melitensis*.

A study of the tissue reactions induced by brucella in human patients and in experimentally infected animals, has yielded very helpful information in an understanding of the natural history of the disease. Brucellae localize principally in the reticuloendothelial system. A characteristic granulomatous type of lesion free of suppuration or caseation has been demonstrated repeatedly in sections of sternal bone marrow and liver obtained by biopsy techniques.^{28,32} These lesions are similar to those encountered in sarcoidosis, tuberculosis and syphilis. The nonsuppurating tubercles of brucellosis induced by *Br. abortus* have been interpreted in experimentally infected animals to represent a good defense mechanism and invasion of the tissues by microorganisms that are only mildly virulent. In contrast, strains of *Br. suis* frequently cause destruction of tissues with suppuration. *Br. melitensis* induces a severe state of toxemia and a chronic state of debility, but less suppuration than that caused by *Br. suis*.

The death rate from brucellosis is low. In the series at the University Hospital three patients have died, all deaths being due to subacute bacterial endocarditis and caused by *Br. abortus*. This is a mortality rate of about 3 per cent of all culturally proved cases.

The Diagnosis of Brucellosis

A history of exposure to the disease and an otherwise undefined febrile illness permit only a presumptive diagnosis of brucellosis. A precise

diagnosis depends upon laboratory data. The total leukocyte count is either normal or reduced, and very rarely above 10,000 cells per cubic millimeter. A relative lymphocytosis is usually present. The erythrocyte sedimentation rate may be normal or accelerated, and is of no diagnostic value.¹ The most reliable method for screening suspected cases is by means of the agglutination test, which is carried out on request by the Laboratories of the Minnesota Department of Health. During the past twelve years, not a single case of bacteriologically proved brucellosis has been seen at the University Hospitals in which agglutinins have been absent from the blood. The agglutinin titer is usually 1 to 160 or above. In fact, over 90 per cent of the culturally proved cases have had a titer of 1 to 320 or more. It is most unusual to encounter a titer of 1 to 80 or less in a specimen of blood from which brucellae are recovered. A significant segment of the healthy population of Minnesota have a low titer of brucella agglutinins. In a recent study of over 1,627 healthy donors appearing at the blood bank of the University Hospitals, it was found that 18.54 per cent had brucella agglutinins in a titer up to 1 to 80. Less than 2 per cent had a titer of 1 to 160 or more, and in many of these individuals a history of exposure to the disease was elicited.²²

If repeated examinations of the blood in a suspected case of brucellosis reveal the absence of agglutinins, it is highly unlikely that the patient has the disease. In the absence of positive blood cultures, too much dependence cannot be attached to titers that are consistently below 1 to 160. At least one culture of blood for brucella should be made in a patient suspected of having the disease, and such a culture should be carried out in every case when the agglutinin titer is 1 to 160 and above. Appropriate culture flasks may be obtained from the Minnesota Department of Health. At the University Hospitals, organisms have been recovered from the blood in about 25 per cent of the cases having active disease.

A positive intradermal test with brucella antigen denotes a state of hypersensitivity due to invasion of the tissues by the organisms at some time in the past. A positive skin test does not mean the presence of active disease. Since a survey at the University Hospitals revealed that approximately 20 per cent of a predominantly rural group of individuals had positive skin tests without other evidence of the disease, the skin test as

a diagnostic procedure has been abandoned.²⁵ A positive skin test in a suspected case of brucellosis having either low titer of agglutinins or absent agglutinins is more confusing than enlightening. The opsonocytophagic test, which is a quantitative determination of phagocytosis of viable brucella by the polymorphonuclear leukocytes, has not yielded enough reliable information as a diagnostic procedure. Its use is not recommended.

The Treatment of Brucellosis

Considerable advancements have been made in the last few years in the specific therapy of brucellosis. While many patients with acute brucellosis may recover from the disease spontaneously, there are a significant number of patients whose illnesses pursue a more chronic course, often with debilitating and painful complications. Therefore, an extensive research program has been directed toward an evaluation of many agents, which might abruptly terminate the illness when administered to patients. These investigations have called for the screening of a large number of drugs in the laboratory and in experimentally infected animals.^{5,10,15,18,19,34} The studies began in 1937, the year in which sulfanilamide became available for the treatment of bacterial infections. Because sulfanilamide, and some of the derivatives of sulfanilamide, such as sulfapyridine, sulfathiazole, sulfadiazine, and sulfamerazine, yielded encouraging results in the laboratory, patients were treated with these agents. While there was no question that in a few patients with acute brucellosis, therapy with one of the sulfonamides coincided with prompt recovery, the over-all results made it quite clear that the sulfonamides were not the answer to specific therapy.

A series of experimental and clinical studies were then undertaken with the antibiotics. Penicillin was soon found to be ineffective. Much more promising results were obtained experimentally with streptomycin, but when the drug was administered to acutely ill patients, the course of the disease was not significantly altered. This inconsistency between a good antibrucella effect of streptomycin under laboratory conditions and the poor results obtained in human beings has not been adequately explained. By a set of fortuitous circumstances, it was observed in a patient critically ill with brucellosis that the simultaneous administration of streptomycin and sulfadiazine caused a decided improvement. The advantage of

this combination was soon confirmed in several more patients.^{20,21,26,27} The most dramatic effect of this combined treatment was in a patient with a highly fatal complication of brucellosis, that of subacute bacterial endocarditis due to *Br. abortus*. This patient recovered following treatment, and has remained well for almost three years. Other workers have also reported on the success of the combination of streptomycin and sulfadiazine in culturally proved acute and chronic brucellosis.^{9,17} One of the best controlled studies is that of Herrell and Nichols¹¹ of the Mayo Clinic, who treated 14 patients with excellent results.

Although the combination of streptomycin and sulfadiazine provided a definite advancement in the therapy of human brucellosis, this treatment also offered certain disadvantages. Prominent among the undesirable effects was the toxicity of streptomycin, which was reflected in vestibular dysfunction. In addition, some of the patients had a relapse after the completion of treatment. Streptomycin also had to be injected intramuscularly. A more desirable therapeutic approach would be with an agent or agents that could be administered by mouth; that would be less toxic; and that would be just as efficient, if not more so. It was just at this stage of experience at the University Hospitals that aureomycin appeared. This was a relatively nontoxic antibiotic that could be given by mouth. Preliminary experiments with this new antibiotic indicated that aureomycin was not as effective against brucella as the combination of streptomycin and sulfadiazine.¹⁵ Accordingly, a therapeutic trial with aureomycin in human brucellosis was not seriously anticipated until a most unusual opportunity for evaluation presented itself. Through an invitation by the Government of Mexico, a co-operative study on the therapy of brucellosis was carried on at the General Hospital in Mexico City with Dr. M. Ruiz-Castaneda, who was in charge of brucellosis control in that country. Following the use of aureomycin by mouth in critically ill patients, the results were unexpectedly most dramatic.²³ Patients who had relapsed following the use of streptomycin and sulfadiazine, and some who were not expected to live, recovered promptly after receiving aureomycin. These results were subsequently confirmed in the treatment of patients in Minneapolis.⁴ More recently there appeared in the British literature the significant paper of Dr. J. E. DeBono, Professor of Medicine in the Royal University of Malta.⁸

He stated, "after a long and disappointing experience in the treatment of undulant fever one cannot help being somewhat cautious in expressing one's opinion. Notwithstanding this, the results have been so constant, so rapid, and even dramatic that it is impossible to deny that aureomycin has a specific action on *Brucella melitensis* in vivo." Bryer and his associates⁷ of Baltimore also look upon aureomycin with favor in the treatment of brucellosis. Almost two years have elapsed since aureomycin was introduced into the treatment of brucellosis at the University Hospitals. This has permitted a follow-up of patients treated with the drug. Over 90 per cent of the patients have remained well following treatment. The recommended dose is now 20 to 30 mgs. per kg. of body weight per day, administered in three or four divided doses for two weeks. A maximum daily intake in an adult should be 2 gm., given in a dose of 0.5 gm. four times a day for two weeks. It has not been found necessary thus far to give aureomycin in combination with another antibiotic. A few patients who have relapsed have recovered following a second course of therapy.

Another antibiotic introduced for the treatment of brucellosis has been chloromycetin. This drug too can be administered orally and does not produce serious toxic reactions. There is no doubt that chloromycetin is effective in some cases of brucellosis.³³ Experience with chloromycetin in brucellosis at the University Hospitals has been limited, but it appears to be less effective than aureomycin.

There should remain no doubt that specific therapy is now available for the treatment of human brucellosis. Prompt treatment of acute cases not only hastens recovery, but also prevents devastating and serious complications.

Some Urgent Problems in Brucellosis Requiring Resolution

While many advancements have been made in our knowledge of brucellosis, much work and research remain to be done. Of paramount importance is the eradication of the natural reservoir of this disease. Brucellosis will not cease to be a threat to human health as long as there are infected cattle, hogs and goats. It is now generally agreed among authorities that brucellosis can only be wiped out in livestock by eliminating the infected animals and by protecting susceptible ani-

mals. In cattle this has called for a program of test and slaughter in heavily infected areas, and the immunization of calves with living, but avirulent brucella. Excellent progress along these lines has been made in Minnesota. There are many areas, especially in the northern part of the state, that are free from the disease. But a more persistent and aggressive effort is needed in some other areas. The very difficult problem of control of swine brucellosis requires further study. Brucellosis in hogs is not so readily diagnosed as in cattle. Because brucellosis is highly contagious in livestock it is readily seen why an eradication program must be a co-operative effort on an area or county basis. It is not enough that a few determined farmers and livestock producers should fight this disease. Because of the economic loss that is entailed it takes courage and vision to slaughter or eliminate highly prized, but infected, animals from a herd. Leadership and an educational program are essential in spearheading an effort of eradication. Physicians practicing in rural areas may greatly encourage this program by becoming acquainted with the status of the animal disease in their areas, and then lending their support to the local efforts by citing the danger of brucellosis to public health. Finally, brucellosis can only be completely stamped out in animals, and the constant threat of infection eliminated, by a nation-wide campaign of eradication. It is encouraging to see the progress that has been made along these lines during the past few years.

One of the most urgent problems in the field of human brucellosis is a more scientific clarification of what is meant by chronic brucellosis. During the past decade or two, some individuals have crystallized attention on the chronicity of the disease to such an extent that the diagnosis is frequently being made on the basis of flimsy and uncritical data. The widespread use of the skin test in diagnosing active disease has been most devastating in rupturing scientific inquiry into the nature of chronic brucellosis. A positive skin test and the symptoms of neurasthenia are all that many physicians require for an absolute diagnosis of chronic disease. It reflects a serious state of unscientific approach to problems in psychosomatic medicine. It is as though the phthisiologist were to diagnose and treat active tuberculosis on the basis of a positive tuberculin test and a vague symptomatology, without any objective evidence of localization of the disease. In an attempt to

define more accurately the nature of chronic brucellosis a collaborative study has been instituted between the Department of Medicine at the University of Minnesota Hospitals and the section of Preventable Diseases of the Minnesota Department of Health. Careful follow-up clinical and laboratory studies are being made on a large group of patients with *bacteriologic proved* brucellosis. This investigation is being conducted with the aid of physicians throughout the state, whose willingness to co-operate in the effort has been most gratifying. It is only on the basis of a much needed study such as this that the frequency and nature of chronic brucellosis can be delineated.

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SOME RECENT ASPECTS OF CARDIAC AND JUXTA-CARDIAC SURGERY

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SOME of the most notable advances during the last decade have been made in surgery of the heart and great vessels. It is not surprising that this should be so, as it has become possible to perform extensive operations because of the enormous amount of detailed study and experiment which has been devoted to answering the question of why patients die after operations from causes other than hemorrhages. One of the major trends in the past twenty-five years of American surgery is the emphasis on training in physiology in the long-term preparation of the young surgeon. Most advances in thoracic and vascular surgery have been made by physiologically minded surgeons.

It is our intention at this time to review briefly some of the studies made in cardiac and juxta-cardiac surgery. The following classification is not intended to be a diagnostic chart, but merely a group listing of the diseases that have been or are being attacked in the human or in the experimental animal. It must be understood that this review can only be a small part of the work that is probably going on in laboratories or hospitals all over the world and has not as yet been reported.

Surgery of Heart and Great Vessels

I. Congenital Abnormalities

A. Malformations which permit the body to receive an oxygen supply sufficient for the growth of the individual.

1. Patent ductus arteriosus
2. Defects in the auricular septum
3. Defects in the ventricular septum
4. Anomalies of the aortic arch
5. Coarctation of the aorta
6. Anomalies of the aortic valve and the ascending aorta.

B. Malformations which deprive the body of an adequate amount of oxygenated blood.

1. The tetralogy of Fallot
2. Defective development of the right ventricle and tricuspid atresia
3. Pure pulmonary stenosis
4. Complete transposition of the great vessels and the common associated anomalies
5. Anomalies of the venous return

C. Defects of pericardium

II. Acquired abnormalities

A. Sequelae of rheumatic heart disease

1. Mitral stenosis

- (a) Valvulotomy
- (b) Commissurotomy
- (c) Interatrial septal defect
- (d) Pulmonary vein to azygos vein anastomosis
- (e) Sympathectomy
- (f) Ligation of auricular appendage

B. Coronary heart disease

1. Sympathectomy for anginal pain
2. Pericoronary neurectomy
3. Coronary sinus ligation
4. Revascularization of the heart by graft from aorta to coronary sinus
5. Anastomosis between the arterial bed of lung grafted upon the heart and the coronary arteries
6. Excision of cardiac infarcts

C. Constrictive pericarditis

III. Pump oxygenators

Congenital Abnormalities

Malformations Which Permit the Body to Receive an Oxygen Supply Sufficient for the Growth of the Individual

Patent Ductus Arteriosus.—It is fitting to begin the discussion of surgery of the congenital malformations by first discussing briefly the patent ductus arteriosus. Gross¹⁹ in 1938 performed the first successful ligations of the ductus. Attempts had been made previous to this, but without success. In 1939 he reported his first successful case, and since that time great strides in the field of vascular surgery have been made. Certainly all due credit belongs to Dr. Gross in being the pioneer of congenital heart surgery.

Normally the communication present *in utero* between the pulmonary artery and the aorta, known as the ductus arteriosus, becomes closed off soon after birth. In some individuals this obligation may be delayed for weeks, for months, or even longer. Christie¹² found, from a study of routine autopsies, that the ductus was obliterated in 95 per cent of subjects by the end of the twelfth week, and in 99 per cent by the end of the first year. The exact mechanism of closure is debatable. However, it must be noted that a patent

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ductus arteriosus does not represent a vital abnormality of any sort; instead it is a failure of normal closure after the child has been born.

It is not within the scope of this paper to discuss in detail the diagnosis of this abnormality. Suffice it to say that a machinery murmur is heard which distinguishes it from other abnormalities.* The hazards which are recognized and occur rather frequently, and are an indication for surgery, are: (1) the diversion of so much blood from the aorta into the pulmonary artery that the individual has a belated physical development; (2) the heart may enlarge in an attempt to maintain the peripheral circulation at a satisfactory level; (3) there may be superimposed bacterial infection with streptococcus viridans; (4) the ductus may rupture.

Keys and Shapiro²⁵ have reviewed some 600 cases of untreated patent ductus arteriosus. They point out that patients who are alive at seventeen years of age, with an open ductus, have a life expectancy which averages about half that of the population as a whole. It is, therefore, on this basis that surgical intervention and closure of the vessel is a worthwhile procedure. This procedure is now being carried out in numerous clinics. As a matter of fact, a discussion of surgical intervention in patent ductus arteriosus was first held here in the state of Minnesota when Dr. Elliot Cutler visited as a Judd lecturer in 1935. At that time it was suggested to Dr. Wangensteen by Dr. George E. Fahr that ligation of the patent ductus was feasible and desirable. Dr. Cutler suggested that a Parham band be put around the ductus of a patient that was presented at that time. The first ductus operation in the state was performed by Dr. Owen H. Wangensteen²⁶ in 1939, and since that time about 100 have been done. Methods of closure of the ductus have undergone several stages of development, but the procedure that has been accepted by most surgeons is one in which the ductus is cut across and the ends ligated individually or suture ligations are used. The group under Dr. Alfred Blalock at Johns Hopkins has been the keenest proponent of suture ligation, which is to be differentiated from simple ligation.

The follow-up on patients who have had surgical closure of the ductus has shown most gratifying results. The mortality is less than 3 per cent in most series in the country. The difficulties of the technique that have to do with surgical

mortality are mainly those due to hemorrhage. It is in the dissection of the posterior wall of the ductus that this complication is met with. We have learned by experience that in order to avoid this complication, it is well to complete the dissection upward toward the aortic arch while working beside the ductus, and to keep away from the thin-walled pulmonary artery, which is less tough and less able to withstand manipulations and mechanical injury.

Defects in the Auricular Septum.—Interauricular septal defect may or may not lead to disturbed function of the heart. In those cases in which a communication between the two auricles has been diagnosed, some attempt will surely be made in the future to close the communication. Patients who suffer from such conditions frequently seek medical attention. Among young adults it is probably the congenital malformation of the heart most frequently seen in medical practice and least frequently diagnosed correctly. Although in its most characteristic form this malformation produces an unusual clinical syndrome, the auscultatory findings are subject to wide variations, and, therefore, those who place reliance upon murmurs and thrills are frequently misled. Introcatheterization which has led to great progress in the diagnosis of cardiovascular disease may be used in the diagnosis of this defect.

Defects in the auricular septum are due to some failure in the formation of the septum, or failure in the anatomic closure of the foramen ovale. Whenever there is a gross defect in the auricular wall, there is free communication between the two auricles. The usual direction of flow of blood is from left to right because the pressure in the left auricle is generally somewhat higher than that in the right auricle. Complications consequent to the presence of this defect are such that an attempt at closure would be very beneficial. Cardiac arrhythmias are common. Pneumonia, pulmonary infections and pulmonary emboli are frequently encountered. Dilatation of the right heart may take place and does take place very frequently.

Attempts at closure of interatrial septal defects have been proposed in various communications. Cohn¹⁸ attempted the invagination of the wall of the auricle and suture of this to the edges of the defect. We have been in the process of preparing an instrument which will work on a patch technique, as one patches a hole in a tire. This instru-

ment will be inserted into the atrium and closure of the interatrial defect will be attempted with the use of a piece of pericardium held by means of clips. There is no doubt that the ultimate answer to intracardiac defects of this sort will be the extracorporeal heart of Gibbon¹⁷ or Dennis.¹⁰ However, until the time arrives when this apparatus shall have been perfected, some attempts at closure should be made in salvage cases.

A word at this time about an unusual condition associated with interatrial septal defect. This condition is known as the Lutembacher syndrome. This abnormality is an auricular septal defect combined with congenital or acquired mitral stenosis and enormous dilatation of the pulmonary artery. The abnormal size of the pulmonary artery is an integral part of the abnormality. Mitral stenosis, either congenital or acquired, increases the strain on the right side of the heart, and increases the dilatation of the pulmonary artery. It is the great enlargement of the pulmonary artery which differentiates this both clinically and at autopsy from other auricular septal defects. Dr. Osler Abbott¹ has attempted reduction in the size of the pulmonary artery recently. He has wrapped cellophane around the greatly dilated vessels in an attempt to relieve some of the pressure symptoms associated with this enlarged pulmonary artery and possibly to reduce the pulmonary blood flow. It is also interesting to note that this condition is exactly the one that is being produced in some cases of mitral stenosis, i.e., an interatrial septal defect to relieve the pressure in the left auricle.

Defects in the Ventricular Septum.—A common name for this disease is *Maladie de Roger*. Essentially an interventricular septal defect may be a high or a low defect. The high defect actually differs from the *Maladie de Roger* in that, instead of a perforation in the wall, the aortic septum fails to meet the ventricular septum. This occurs commonly in the tetralogy of Fallot or the Eisenmenger complex. Generally speaking, when a low defect is present, the prognosis in cases of a small lesion is excellent. It is only in cases in which the defect is so large that the arterio-venous shunt causes changes in the pulmonary vessels that the prognosis should be guarded. G. Gordon Murray²⁷ recently has used an ingenious method in attempting to close an interventricular septal defect. By landmarking the projections of the in-

terventricular septum, on the anterior and posterior surfaces of the heart, he has pulled through in an anterior posterior direction, pieces of fascia lata and anchored them on the surface of the heart. In this way he has been able to reduce the flow of the left to right shunt that is present in an abnormality of this sort. It is our intention to use in this particular abnormality the instrument proposed for use in the interatrial septal defect.

Anomalies of the Aortic Arch.—Anomalies in the direction in which the aorta arches or abnormalities in the origin of the great vessels from the arch of the aorta are by no means rare. They may occur together or separately. When the aorta arches to the right, the descending aorta may lie either to the right or to the left of the spinal column. If the aorta arches to the right and descends upon the right, the condition is known as a right aortic arch. When, however, the aorta arches to the right and is drawn abruptly back to the left and descends upon the left, the condition is known as a right aortic arch with a left descending aorta.

Generally speaking, most of the anomalies do not require surgical therapy. However, there are some combinations in which, because of stridor, dyspnea, cyanosis, hoarseness and cough, surgical intervention is indicated:

1. *The combination of a retro-esophageal right aortic arch and left descending aorta, and a persistent anterior arch.* This is commonly known as a double aortic arch or aortic ring. The trachea and esophagus are included within the center of the ring and constricted. Surgical therapy for this anomaly requires division of the anterior limb of the aorta between the origins of the left common carotid artery and the left subclavian. The left common carotid artery is then tacked to the back of the sternum so that it will not press on the anterior surface of the trachea.²¹

2. *A right aortic arch with the descending aorta drawn to the left by a left ductus arteriosus.* There should be little difficulty in correcting this condition, as a division of the ductus will allow the pulmonary artery to fall forward, thus giving more room for the trachea and esophagus.

3. *Anomalous right subclavian artery.* This may give rise to a condition known as "dysphagia

lusoria." The right subclavian artery, instead of arising in a normal way from the innominate artery, has an origin from the left side of the aortic arch so that the vessel must course upward and to the right, crossing the midline, to reach its normal exit on the right side of the thoracic cage. In doing so, the vessel presses on the esophagus and produces symptoms at times. Surgical therapy consists of division of this anomalous vessel.²²

Most of these conditions can be diagnosed with accuracy by the instillation of contrast media in the trachea and esophagus.

Coarctation of Aorta.—Coarctation of the aorta is a narrowed or completely obstructed area of the aorta. It has been classified as infantile or adult in type. A good deal of overlapping of the two types exists, and this arbitrary classification is rather useless from a surgical viewpoint.

Surgical intervention in this disease was first suggested by Blalock and Park,⁶ and first performed on the human by Gross²⁰ in this country and Crafoord¹⁴ in Sweden. Operation offers much hope to patients with this malformation. Reifstein, Lavine, and Gross,³⁰ from a study of cases of coarctation of the aorta in order to determine the outlook for patients with this malformation, determined that subjects could be placed in one of four groups: (1) about one-fourth live far into adult life and old age with little or no incapacitation; (2) about one-fourth die from bacterial endocarditis or aortitis at an average age of twenty-eight years; (3) about one-fourth encounter sudden death from rupture of the aorta at an average age of twenty-seven; (4) about one-fourth die because of the hypertensive state from congestive failure at an average age of thirty-nine or from cranial hemorrhage at an average age of twenty-eight. Thus, in summary, it might be said that the average age of death of the patient with coarctation is thirty-five, including those patients who died from incidental causes. In those who die from coarctation or one of its complications, the average age at death is about thirty.

Operation for correction of this abnormality is successful and should be done. It is important to note that in young subjects with coarctation the pressures in the arms may be normal or slightly elevated, whereas in older persons one may find hypertension of moderate or marked degree. Once the diagnosis is made, it is my feeling that

operation should be undertaken whether hypertension is marked or absent.

The operation that has been done to date has been a resection of the coarctation with an end-to-end anastomosis of the aorta. A patent ductus, if present, should be transected and ligated also. Gross recently has reported on the use of arterial grafts in the cases of coarctation in which it is impossible to bring the two ends together. In this recent report of Gross's,²³ he reports 100 coarctations in which surgical exploration was carried out in ninety-one. Eleven deaths have resulted, of which seven were felt to have been preventable by certain changes in surgical techniques, or which could have been prevented by declining operation in view of the presence of certain co-existing cardiovascular complications. All in all, the procedure of resection and end-to-end anastomosis of the aorta is a tried and thoroughly successful procedure.

Anomalies of the Aortic Valve and the Ascending Aorta.—Congenital aortic stenosis may be caused by an abnormal calcification of the aortic valves. Subaortic stenosis is caused by the persistence of a band or membrane of connective tissue which lies immediately beneath the aortic valves. It may be possible to section these obstructive mechanisms by the use of a valvulotome. Smithy,²³ before his untimely death, had perfected an experimental technique for aortic valvulotomy. It may indeed be possible in the future to section a stenosed aortic valve.

Malformations Which Deprive the Body of an Adequate Amount of Oxygenated Blood

The Tetralogy of Fallot.—Another brilliant chapter in the treatment of congenital heart disease was written by Blalock and Taussig.⁷ The description by Fallot of a combination of anatomical abnormalities served to focus attention upon certain patients in the so-called "cyanotic group" of congenital heart disease. In this condition there is pulmonic stenosis or atresia, an interventricular septal defect, an aorta which overrides the septal defect and right ventricular hypertrophy. The severity of the cyanosis depends, in addition to other conditions, upon the degree of the pulmonic stenosis and the degree of overriding of the aorta. It is known that at least 5 grams of reduced hemoglobin per 100 cubic centimeters of circulating blood are necessary in order to produce obvious cyanosis.

The most important element of the contribution of Blalock and Taussig is the conception of the part played by an inadequate pulmonary flow. As a result of this, they postulated that the cyanosis and disability could be relieved by improving the blood supply to the lungs by anastomosing a systemic artery to a pulmonary artery. The proof of the correctness of this postulate lies in the good results of their operation. Cyanosis is often completely relieved and is always greatly lessened when a satisfactory anastomosis is possible; the disability is also greatly relieved. As the venous-arterial shunt persists, it may be impossible, except in the slighter cases, to relieve the cyanosis completely, at any rate after exercise.

There is no place where greater co-operation is necessary between internist, roentgenologist, anesthesiologist, nurse, and surgeon than in the treatment of this anomaly. Team work is essential. With the introduction of cardiac catheterization, it was assumed that this would be the entire answer to diagnosis. However, we now know that the information afforded by cardiac catheterization is essentially complementary to other investigations.

The essential criteria for successful completion of the operation on a patient are: (1) the primary difficulty must be lack of adequate pulmonary blood flow; (2) there must be a pulmonary artery to which the systemic artery can be anastomosed; (3) a systemic artery must be available for anastomosis; (4) the difference in pressure between systemic and pulmonary circulation must be such that blood will flow from aorta to pulmonary artery; (5) lung structure must be such that the patient can survive collapse of one lung and occlusion of one pulmonary artery; (6) the structure of the heart must be such that it can adjust to the altered circulation.

Having satisfied these postulates one may now choose various procedures. Blalock's preference has been the anastomosis of a subclavian artery to the pulmonary artery in an end-to-side manner. At times he has used the innominate or carotid artery. However, the mortality with use of the latter is rather high. Potts²⁹ has introduced a modification which utilized an ingenious clamp for direct anastomosis of the aorta to the pulmonary artery. The great advantage of the Potts operation lies in those cases in which the subclavian artery is too small or too short. Our experiences with the Potts procedure, though limited, suggest that it isn't technically very difficult to do. On

the other hand, if it is possible to perform a Blalock type of operation, it would appear unjustifiable to choose deliberately to use the aorta instead.

Although pure valvular stenosis does occur in Fallot's tetralogy, it is certain that infundibular stenosis is more common. A moment's reflection shows that if it were possible to relieve this infundibular stenosis directly, it would be far better than short-circuiting it as in Blalock's operation. Brock,⁸ of England, suggests another important advantage would be conferred by the operation. In Fallot's tetralogy, the cyanosis and disability are due to two things—the pulmonary stenosis, which allows too little blood to go to the lungs, and the septal defect with an overriding aorta which allows a mixing of venous with arterial blood. The Blalock operation increases the blood supply to the lungs, but does not relieve the right-to-left intracardiac shunt. If the pulmonary stenosis is severe, the blood in ventricular systole cannot pass quickly enough into the pulmonary artery, and must be diverted into the overriding aorta; if the degree of pulmonary stenosis is slight, a far greater portion of the blood can pass into the pulmonary artery, and a correspondingly smaller amount passes into the aorta. The effect of direct operation upon the pulmonary stenosis, and of relieving the obstruction to the outflow of the right ventricle will be not only to increase the amount of blood going to the lungs, but to lessen the amount passing through the shunt and causing venous arterial mixing. On this basis Brock has now operated upon five patients, and either resected a portion of the infundibular wall or dilated the stenosis manually.

Defective Development of the right ventricle and Tricuspid Atresia.—Inasmuch as the primary difficulty is lack of circulation to the lungs and the pulmonary pressure is low, the operation developed by Blalock and Taussig may prove of benefit in this condition.

Pure Pulmonary Stenosis.—In its simplest form, pure pulmonary stenosis may consist of a pure valvular stenosis with no interventricular septal defect. In most of these cases, cyanosis is absent or slight. The most frequent complication is the gradual production of a right heart failure. The correct treatment for this condition is relief of the valvular obstruction by valvulotomy. Brock has recorded five successful trans-

ventricular valvulotomies. The specially designed valvulotome is inserted in the right ventricle and passed up into the pulmonary artery.

Complete Transposition of the Great Vessels and the Common Associated Anomalies.—Complete transposition of the aorta and pulmonary artery is a congenital anomaly that is relatively common. In this abnormality, the aorta arises from the ventricle receiving oxygenated blood. Blood that is pumped by the left ventricle through the pulmonary artery to the lungs returns by the pulmonary veins and left auricle to its point of origin in the left ventricle. In other words, there is transposition of the great arteries without transposition of the great veins. Generally speaking, there is some degree of communication between the two arcuations by way of septal defects or other abnormalities.

Blalock recently has subjected a group of patients with transposition to surgery. The operations fell into three main groups:

1. The construction of extracardiac shunts, either venous or arterial.
2. Creation of an auricular septal defect.
3. Combination of these two methods.

Blalock states that the combined procedures seem to offer likelihood of improvement. Though most of the patients have survived the operative procedure itself, the postoperative mortality is high. However, some hope to these unfortunate individuals is offered by the fact that some improvement has been made.

Anomalies of the Venous Return.—On occasion one of the pulmonary veins may enter the right auricle. This condition may not necessarily cause any immediate concern, but as adulthood is reached, an added strain may be put on the heart. The diagnosis is essentially one of cardiac catheterization. If and when this is made, surgical intervention is indicated. The vein is ligated or the lobe of lung, which it is draining, removed—probably the latter.

It must be added here, that the association of interauricular septal defects with this other anomaly is frequent. We have had occasion to explore a case of anomalous pulmonary vein, only to find that the catheter had passed through the septal defect into the normal opening of the vein in the left auricle.

Acquired Abnormalities

Sequelae of Rheumatic Heart Disease

Mitral Stenosis.—The need for a safe technical approach to the surgical treatment of chronic valvular disease of the heart has been recognized for many years. The idea is not new, as the surgical treatment of mitral stenosis was first suggested by Brunton⁹ in 1902. In 1913 Dogen attempted actual dilatation of a stenosed pulmonary valve. In 1929 Cutler and Beck¹⁵ summarized their personal experiences in the surgical treatment of eight cases of mitral stenosis and added four collected cases of chronic valvular disease subjected to operation. The mortality for the entire group was 83 per cent. Since that time much progress has been made in the field of thoracic surgery. These advances, combined with recent developments in chemotherapy and a sounder present-day concept of the prevention and treatment of shock, minimize many of the former hazards, and should permit reapplication of certain methods with significant reduction in mortality.

Valvulotomy.—Anatomically, the stenosed mitral valve can be reached by a suitable instrument by way of either the left ventricle or left auricle. It is not yet entirely clear as to which is the better approach. Objections have been raised as to the thinness of the auricular appendage wall. Our experiences with this segment of auricle have been that, quite the contrary, it is at times most thickened. Another objection has been the posterior position of the left auricle. Our experience in operating on patients with mitral stenosis, in order to ligate the auricular appendage, has been, that with extreme cardiac enlargement, the greatly dilated left atrium pushes the appendage anteriorly into the operative wound. With a curved valvulotome, much after the type that Harken has used, we are proposing to enter the left auricular chamber rather than the ventricle. In order to enter the left auricle by way of the left ventricle, it is necessary to dislocate the heart, which may lead to irregularities.

Valvulotomy has been performed recently by Harken, and Smithy. Sections of the leaflets are removed, particularly the posterior leaflet, Harken reports valvuloplasty in two patients with one death, while Smithy reports the successful excision of a segment of the stenosed mitral leaflet

in three of seven patients. It is interesting to remark that one of his successful results is a technician now working in a Saint Paul hospital.

The exact indications for any procedure on the rheumatic mitral stenosed heart are not exactly clear yet. We will not go into this, as we feel that a careful discussion by surgeons and internists is in order before definite conclusions can be reached. However, it is our feeling that this must be done soon, as surgery has definitely something to offer the patient with rheumatic mitral stenosis who cannot be controlled medically.

Commissurotomy.—In resection of part of the stenosed mitral valve, one inevitably creates an insufficiency. Are some types of insufficiency better borne than others? Ideally, surgical intervention should restore perfect valvular action; then the correction of obstruction in the light of the associated degree of insufficiency that is immediately produced, would not come under consideration. Bailey has approached this problem by an ingenious method of dividing the mitral valve at the fused commissures under digital control, a procedure which he has called commissurotomy.

Interatrial Septal Defect.—The interesting observation first reported by Lutembacher, that patients with mitral stenosis who have a co-existing patent interauricular septal defect, do not usually suffer from paroxysms of pulmonary edema, has led to the suggestion that such a defect might be created artificially in cases of mitral stenosis. Harken has created a defect in humans by means of a specially devised valvulotome. Blalock has attempted this procedure and used it in cases of transposition of the great vessels. We have experimentally used the approach of anastomosing the auricular appendages, either directly or by means of a vein graft.³² By this method the interauricular defect, which is in effect produced, can be made under direct vision and can be broken down immediately, should the condition of the patient warrant it.

Pulmonary Vein to Azygos Vein Anastomosis.—Sweet³⁴ as used still another approach. He has anastomosed the superior segment branch of the inferior pulmonary vein to the azygos vein, thus creating a communication between the systemic

and pulmonary circulations. Whereas the pulmonary circulation is a closed circuit, the systemic venous return is not; thus the right pressure within the left auricle can be distributed over a greater area.

Sympathectomy.—Some cases of mitral stenosis may not be considered candidates for cardiac intervention. This category includes patients whose incapacitating symptoms, particularly attacks of pulmonary edema, are associated with rapid heart action that cannot be controlled by medical measures. For this group of patients, a palliative procedure may be the removal of the cardiac sympathetic accelerator and afferent nerves.

Ligation of Auricular Appendage.—One of the most common causes of peripheral arterial emboli is rheumatic mitral stenosis. This disease occasions a showing of blood within the left atrium and left auricular appendage. This stasis of blood, coupled with auricular fibrillation, leads frequently to thrombus formation in the left atrium. These thrombi are the most common antecedents of peripheral emboli in rheumatic heart disease. The most common location of a thrombus in the left atrium is the left auricular appendage. Surgical efforts in eliminating embolization from this source, subsequent to rheumatic mitral stenosis would be of benefit.

Following preliminary animal experiments, simple ligation of the appendage at its junction with the left atrium was performed in three patients.² All of these patients had evidence of embolization and rheumatic mitral stenosis. In two of the patients, a total of three successful embolectomies of the extremities were performed previous to the auricular appendage ligations. The patients all withstood the procedures with surprising ease and the postoperative convalescence was uneventful.

Coronary Heart Disease

Interest in the surgical approach to the problem of coronary heart disease was stimulated by Claude Beck,⁴ who formulated the concept of the "trigger zone" of myocardial anoxemia and of a prophylactic "blood bath" to such a functionally impaired area. He emphasized the fact that complete occlusion of all branches of a coronary artery, however small, supplying a given area of the heart resulted in far more rapid and irrever-

sible damage to myocardial function than partial occlusion of much larger vessels.

Beck's first operation involved covering the heart with a flap of the pectoralis major muscle and suturing it to the parietal pericardium, using the vessels of that muscle as a source for a collateral blood supply. In subsequent studies he effected a new blood supply to the heart through vascular adhesions resulting from mechanical abrasion and chemical irritants.

O'Shaughnessy²⁸ used the omentum as a source for a collateral blood supply, bringing it up through the diaphragm and suturing it to the surface of the heart. Lezius,²⁹ on the other hand, utilized the lower or middle lobe of the left lung as a source for collateral blood supply. More recently, Carter¹¹ of Cincinnati has utilized the same approach.

Fauteux,¹⁶ although not attempting to produce collateral coronary circulation, sought to relieve the symptoms of coronary heart disease by combining coronary vein ligation with pericoronary neurectomy. This, in effect, allows for arterial blood stasis, and therefore, absorption of more oxygen by the myocardium.

Recently Beck has utilized a new principle in treatment of myocardial infarction. Utilizing the coronary sinus as a new arterial pathway he has anastomosed a segment of artery to this channel as a direct bridge between the aorta and coronary sinus. It is his finding that a real revascularization of the heart takes place—blood getting into any ischemic area by the "back door," so to speak.

It must be finally mentioned that excision of infarcted areas of myocardium may be a therapy of the future. Murray found that in experimentally produced cardiac infarction, the infarcted area became dilated and functionally ineffectual from the time of arterial occlusion. By controlling the dilatation by excision of the dilated area and immediate suture, he was able to save the lives of many of his animals.

Constrictive Pericarditis

This acquired disease of the pericardium has succumbed to surgical intervention. When the diagnosis is made, and the sometimes associated tubercle bacillus found, then streptomycin and early operation are indicated. The results to date have been excellent. In a recent follow-up of eleven cases followed up to eleven years post-operatively, the majority of the patients, in whom a good decortication was possible, are at full work.

Pump Oxygenators

Finally we come to the ultimate in cardiac surgery—the extra-corporeal heart. By this method it will be possible to completely by-pass a bloodless heart and yet pump oxygenated blood into the arterial system. Through the ingenious efforts of Gibbon, this work was begun in 1939, and is still continuing. Dennis has been working on a similar machine. It can be said that the solution to this most amazing problem will surely come in the near future. Both of these workers have been able to keep animals alive for periods of time. There are problems still to be solved before a fool-proof apparatus is available.

Summary

A summary of some of the work on cardiac and juxta-cardiac surgery is presented. Surgery within this field is progressing rapidly. It is essentially due to the great progress made in the physiology of the chest and in vascular techniques. A co-operative spirit between all members of the medical profession concerned in the care of individuals with acquired or congenital heart disease is a necessity in the furtherance of this field. The future of cardiac surgery holds great promise as shown by the studies made in experimental surgery of this type.

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BANTI'S DISEASE

Report of Two Cases Treated by Splenectomy and Later Gastrectomy

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THE purpose of this paper is to evaluate the various treatments of Banti's disease and cirrhosis of the liver. Really, what will be discussed is the treatment of portal hypertension and its sequelae.

Portal hypertension has been divided into two main groups (Whipple): those having intrahepatic block and those having extrahepatic portal block. In the first group is included the cirrhoses and in the second group cases of fibrous replacement and/or thrombosis of the portal vein or of a main tributary, cavernous transformation of the portal vein or its tributaries, stenosis of the portal vein, et cetera. Banti's disease belongs in the second group.

In 1894 Banti described the symptom-complex which bears his name. There are three stages of the disease: (1) the anemic phase, with splenomegaly, asthenia, and occasional gastrointestinal hemorrhages; (2) transitional stage, with oliguria, urobilinuria, hepatomegaly, pigment disturbances of the skin and increasing gastrointestinal disturbances; (3) ascitic stage, with atrophy of the liver, hemorrhage, and death.

It is interesting that one of the workers in Aschoff's laboratory studied the original sections of the spleens described by Banti and found no difference between them and those of Laennec's cirrhosis. It is often stated that Banti's disease is just another phase of cirrhosis of the liver. In Banti's disease the "cirrhosis" starts in the spleen and then goes to the liver, while in Laennec's cirrhosis, the fibrosis starts in the liver and ends up in the spleen. While it is true that late cases of Banti's disease and cirrhosis may be indistinguishable, certainly earlier in the disease, the enlargement and fibrosis may be limited to the

spleen with no appreciable involvement of the liver.

As to etiology, Banti's syndrome may be caused by various mechanical disturbances of the portal system. These have been listed by Baronofsky as follows:

1. *Thromboses of the splenic and/or portal veins.* (Warthin, 1910, Opitz, 1924, Rosenthal, 1925, Wallgren, 1927, Wilson and Lederer, 1929, Noble and Wagner, 1933, Mallory, 1934, Smith and Farber, 1935, Klemperer, 1938.)
 - (a) Various inflammations of the upper abdomen (pancreatitis, et cetera).
 - (b) Acute infectious diseases.
 - (c) Infectious processes in spleen itself.
 - (d) Primary degeneration in vein wall akin to atherosclerosis of arteries.
 - (e) Trauma.
2. *Cavernomatous transformation of the portal vein.* Beitzke (1910) and Hart (1913) were of the opinion that this is a typical congenital malformation. Risel (1909), Verse (1910), and Emmerich (1912), believed that the cause of this must be sought in a thrombosis of the portal vein followed by organization and recanalization. Pick (1909) on the other hand argues that this is a neoplastic lesion, an angioma, or cavernoma of the hepatoduodenal ligament, inasmuch as in some cases the process extends far beyond the limits of the portal vein.
3. *Stenoses of the portal vein.* (Leon-Kindberg, 1914.)
4. *Compression of the portal or splenic veins from without.*
 - (a) Adhesions from previous peritonitis (Smith and Farber, 1935).
 - (b) Enlarged lymph nodes (Smith and Farber, 1935).
 - (c) Gallstones (Armstrong, 1906).
5. *Congenital narrowing of the portal bed in liver.* (Moschokowitz, 1917.)
6. *Cirrhosis of the liver.*
7. *Congestive splenomegaly without cirrhoses.* (Rolleston, 1914, Larrabee, 1934, Eppinger, 1937, Rous-selot, 1940.)

What causes death in the late stages of Banti's disease and cirrhosis of the liver? First: hemorrhage. In reviewing the cases of cirrhosis of the liver and Banti's disease seen at Ancker, Bethesda,

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One of the best reviews on portal hypertension is that by Baronofsky.² His paper has been widely quoted in this article.

TABLE I. INCIDENCE OF HEMATEMESIS IN BANTI'S DISEASE AND CIRRHOSIS OF THE LIVER

Hospital	No. of Cases	Hemorrhage	Died	Died of Hemorrhage
Ancker	231	29	—	20
Bethesda	49	8	15	7
Miller	45	8	—	—
St. Joseph's	83	32	35	16

Miller and St. Joseph's Hospital, Saint Paul, Minnesota, over a ten-year period, it was noted that of patients who came in with hematemesis, over half die from this complication (Table I).

Secondly, some patients with Banti's disease and cirrhosis of the liver die of hepatic insufficiency. Hepatic insufficiency greatly increases the risk of any surgical procedure. It is well known that such patients do not stand anesthesia well. Cirrhosis of the liver with ascites is not a contraindication to surgery as hepatic insufficiency may not follow for a long time.

Thirdly, some of the patients with Banti's disease succumb to intercurrent infection.

It is important to know how long a patient will live with Banti's disease or cirrhosis of the liver without any treatment. This is impossible to state as there is no series in the available literature in which such cases have been followed from onset of the disease until death. After all, the cause of these conditions is not known. All the physician can hope to do is to reverse or stop the progress of the liver damage if it is not too far advanced by means of diet, vitamins, et cetera. All the surgeon can hope to do is to decrease the portal hypertension or to control hemorrhage from bleeding "esophageal varices." The surgeon should always attempt to have the patient live more comfortably if not longer.

The treatment of Banti's disease and cirrhosis of the liver is aimed at the alleviation of the portal hypertension or its sequelae. One of the most serious of these sequelae is hemorrhage from ruptured esophageal varices. This complication may be treated:

1. Conservatively, by blood transfusion, sedation, et cetera, in the hope that the bleeding will stop by itself.

2. Tamponade. By balloon attachments to a Miller-Abbott tube it is hoped to exert pressure on the bleeding esophageal veins and thereby control hemorrhage. However, it is difficult to place

or hold the distended balloon accurately. While an occasional brilliant result is seen, the method is unsatisfactory at present in most instances of bleeding esophageal varices.

3. Injection of esophageal varices. This method was first introduced by Crawford and Frenckner of Sweden in 1939, and popularized in this country by Moersch. The method is akin to the injection treatment of varicose veins of the extremity. It requires skill with the esophagoscope, is at best palliative, and is of little value if the vein is actively bleeding.

To relieve portal hypertension in cirrhosis and Banti's disease, the following methods have been proposed:

1. Talma-Morrison operation. In this operation, an attempt is made to shunt the blood from the portal to the systemic circulation by suturing the omentum to the anterior abdominal wall; by forming adhesions between the liver and the spleen with the vault of the diaphragm on the anterior abdominal wall, and between the gall bladder and the anterior abdominal wall. As compared to control series, the patients do not live longer nor do they show marked improvement; therefore, the operation has been largely abandoned.

2. Splenectomy. The rationale of splenectomy in the treatment of portal hypertension is that removal of the spleen decreases the circulatory portal blood volume. It is commonly said that splenectomy removes 40 per cent of the portal blood volume. Probably more correct is the statement that in normal animals the stomach and spleen together supply about 40 per cent of the portal blood, the spleen itself about 18 per cent. Removal of the spleen could conceivably do some good in early cases of Banti's disease due to thrombosis limited to the portal vein. As a means of controlling hemorrhage from esophageal varices, splenectomy leaves much to be desired, as in the cases of Banti's disease treated by splenectomy over a ten-year period at Ancker, Bethesda, Miller, and St. Joseph's Hospital, Saint Paul, over half had hematemesis afterwards. The fact that one patient had hemorrhages twenty-four years and another eighteen years after splenectomy shows the necessity for studying these patients over a long period of time (Table II).

BANTI'S DISEASE—REA ET AL

3. Eck fistula. In anastomosing the portal vein and inferior vena cava (Eck fistula) the passive congestion of all structures drained by the portal system is relieved. There are several bad features of this operation however.

5. Gastric resection. Before considering the rationale of gastric resection to relieve portal hypertension, the question of the source of hematemesis in portal hypertension should be discussed. It is generally thought that the hematemesis comes

TABLE II. HEMATEMESIS AFTER SPLENECTOMY IN BANTI'S DISEASE

Miller Hospital					
Hospital No.	Sex	Age in Years	Splenectomy	Post-operative hematemesis	Course
A-20290	F	40	+	—	L & W—2 yrs.
A-23086	F	51	—	—	L & W.
A-2708	F	60	—	—	Died hemorrhage.
A-36287	F	27	+	+	Hemorrhage off and on 18 yrs.
A-1144	F	15	+	+	Died hemorrhage and ascites 4 yrs. later.
St. Joseph's Hospital					
D-12318	F	36	+ 1941	+	Died 1-19-47, Hemorrhage.
D-48314	M	21	+	+	Died 13 mo. later Hemorrhage.
Ancker Hospital					
A-26165	M	16	+	+	Died 2 yrs. later Hemorrhage.
A-33489	M	17	+	—	P. O. peritonitis.
A-143017	M	44	+	—	L & W—3 yrs.
A-126046	M	50	+	—	L & W—5 yrs.
Bethesda Hospital					
178064	M	19	—	+	Bleeds off and on 12 yrs.
181572	M	28	+	+ 48 hrs.	90% gastric resection.

(a) Follow-up study of patients so treated has shown that some of the patients have had episodes of bleeding since operation and post-mortem examinations on some have shown occlusion of the anastomosis.

(b) In some cases fibrous or cavernomatous transformation of the portal vein has made the likelihood of being able to anastomose either the main trunk or one of its larger tributaries with the inferior vena cava, even with utilization of a vein graft, improbable.

4. Splenorenal anastomosis. Anastomosis of the splenic vein to the renal vein reduces the portal hypertension, but the following objections have been raised against this procedure:

- The operation may mean the sacrificing of a normal kidney, although by the use of an end to side anastomosis, it is not necessary to sacrifice the kidney.
- In a certain number of cases, thrombosis occurs at the site of anastomosis.
- In removing the lumbar veins, more collateral circulation is often removed than is obtained by the splenorenal anastomosis (Learmonth).

from bleeding esophageal varices. The varices may bleed as a result of injury. It hardly seems reasonable to assume that the mere hydrostatic distention of these veins and their eventual rupture is the sole cause of the hematemesis (Baronofsky). In some instances, there are no demonstrable lesions in the esophagus, but ulcers or erosion of the cardia are present. There is no good statistical evidence how often this occurs. It is interesting that duodenal ulcers are often found at post-mortem examination of cirrhotic patients who have died of hemorrhage from ruptured esophageal varices. Of three patients at Bethesda Hospital who died of the above condition, all had chronic duodenal ulcers. However, at Ancker Hospital, of forty-five patients with cirrhosis and esophageal varices, only two had duodenal ulcers at death. How often duodenal ulcers occur in hepatic disease is not known. This incidence of duodenal ulcer in cirrhosis is mentioned not so much as a source of hematemesis as to emphasize the possible gastric acidity factor in injuring the esophageal and duodenal mucosa.

Regurgitation of gastric digestive juice into the esophagus is not an uncommon occurrence. That acid has a harmful effect on a decreased or

injured esophageal mucosa is well known (Friedenwold, Feldman, and Zinn). Baronofsky and Wangenstein have shown that with impairment of the nutrition of the mucous membrane of the stomach, duodenum and esophagus due to venous pooling, these areas are lowered in resistance and will be easy prey to the gastric digestive juices. Wangenstein and Baronofsky in their experimental work on portal hypertension explored the following theses:

1. If the acid peptic factor of gastric secretion is important in the causation of erosions in the esophagus, then extensive or total gastrectomy would eliminate this.
2. If the stomach drains into the portal circulation and the esophagus into the caval, and there is a communication between the two, then isolation of the esophagus from the portal circulation by means of gastrectomy should prove satisfactory in preventing hemorrhage.
3. If extensive gastrectomy were done, there would be an additional reduction of blood inflow into the portal system over the attending splenectomy.

Baronofsky found that in the presence of portal hypertension in dogs an extensive (90 per cent) gastric resection afforded real but not absolute protection against histamine-provoked ulcer. Normally, 75 per cent gastric resection affords protection against histamine-provoked ulcer, but this percentage affords no protection in the presence of portal hypertension.

Clinically, Wangenstein has stressed that one must perform a total gastrectomy to afford absolute protection against the esophageal bleeding in portal hypertension. Also, one must take into consideration the liver function of the patient. Of eight patients with portal hypertension treated by gastric resection, four died, three having a definite impairment in liver function.

Phemister and Humphreys performed a total gastrectomy and an esophagogastric resection for bleeding due to Banti's disease. Esophagogastric resection is a more direct approach to management of esophageal varices as it separates the esophagus completely from the higher venous pressure of the portal circulation. Wangenstein's idea of the amount of stomach that it is necessary to remove is physiologically sound and is of clinical value. When, on exploration, the liver appears normal, as it usually does in Banti's disease, the measurement of the venous pressure in one of the tributaries of the portal vein is important. In thrombophlebitis of the portal vein, the venous pressure will be up, whereas in bleeding

from a silent, nonpalpable gastric erosion, the venous pressure will be normal. For the latter type of case, the conventional 75 per cent gastric resection is adequate; for the portal hypertension, at least a 95 per cent resection should be done (Wangenstein).

It should be recorded that a subtotal esophagocardiotomy does not control hematemesis in Banti's disease. Scott and Longmire report such a case, in which later a total gastric resection was performed, eliminating all signs of hemorrhage from the intestinal tract.

Two cases of Banti's disease are presented which were treated by splenectomy and finally a gastric resection.

Case 1.—The first patient was a white man, thirty-seven years old. At the age of seven years, his spleen was removed for "splenic anemia." Six weeks before admission to the hospital he had a gastrointestinal study because of epigastric distress, fullness and loss of appetite. The x-ray report states that he had active duodenal ulcer. The day before admission to the hospital, the patient had a hematemesis which, in spite of transfusion, sedation and rest, persisted. The preoperative diagnosis was bleeding duodenal ulcer. At operation, no ulceration could be felt or seen in the duodenum or stomach. At the esophagocardial junction were large varices. The bleeding from esophagus was so profuse that it was packed temporarily with gauze to partially control it. A total gastrectomy was performed anastomosing the jejunum to the esophagus with an entero-enterostomy between the limbs of the jejunum. The patient made an uneventful recovery and has remained well and free from hemorrhage for three years.

Case 2.—The second patient was a twenty-seven-year-old man who had "spleen trouble and hemorrhages" since he was four years old. For two months before admission to the hospital he had noticed tarry stools and was weak. He was admitted to the hospital in shock after a massive hematemesis. The patient was transfused and his general condition improved. On August 26, 1949, a splenectomy was performed. An 800 gram fibrotic spleen was removed. The liver appeared normal. Within forty-eight hours after splenectomy the patient had hematemesis which practically exsanguinated him. He was transfused until his blood pressure, pulse and hemoglobin were at normal level, and on September 6, 1949, a 90 per cent gastric resection was performed. Dilated esophageal veins were noted at operation. The patient has had no more hemorrhages three months after the resection.

Summary

The current ideas concerning the treatment of portal hypertension have been reviewed. In early cases of Banti's disease due to thrombosis or

thrombophlebitis of the splenic vein, splenectomy may be curative; however, splenectomy for hemorrhage due to bleeding esophageal varices in Banti's disease or cirrhosis of the liver is of questionable value.

From an anatomic and physiologic point of view, a total gastric resection or esophagogastric resection is the procedure of choice in the treatment of bleeding esophageal varices or lesions of the cardiac end of the stomach in cirrhosis of the liver or Banti's disease.

How to evaluate an Eck fistula or splenorenal anastomoses in the treatment of portal hypertension is difficult, as not enough time has elapsed to indicate the eventual outcome. The objections to these procedures have been discussed.

Two cases of Banti's disease are reported which had been treated by splenectomy before a gastric resection was performed to control hematemesis. While these patients have been followed only three months and three years respectively, the results are encouraging enough to warrant gastric resection in such patients in the future.

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Discussion

DR. IVAN D. BARONOFKY (by invitation): I have very little to add to Dr. Rea's excellent discussion of the subject. Dr. Rea is to be congratulated on his excellent results in the treatment of such a fatal disease. I should like to present some of the experimental work that was done while at the experimental surgery laboratory at the University, under Dr. Wangenstein. Before I begin, I should like to mention that Dr. Longmire, while at the Johns Hopkins Hospital, recently included a series of some sixty total gastrectomies. One of these gastrectomies was done for portal hypertension and bleeding. In the laboratory, experiments were carried out on dogs and on animals that were usually resistant to

the effects of histamine and beeswax, such as the rabbit. (Slides shown) In the rabbit it has been practically impossible to produce peptic ulcer or erosion by means of histamine and beeswax. Dr. Lannin was finally able to produce these lesions only when the animals had been on a carrot juice diet for a period of at least two weeks. The reason for the inability to produce ulcers, without that type of diet, is probably that the rabbit's stomach is always filled with food. This food absorbs the acid secretions and therefore this erosive factor is not effective.

(Slides shown) Here is a slide that shows the effect of portal hypertension on a rabbit's stomach. This animal, in addition to the splenic tie procedure, has had histamine and beeswax for three days. As you can see there are multiple bleeding points and ulcers in the entire specimen. A word here about the splenic tie procedure. In some of the animals, if the splenic vein is ligated distal to its junction with the gastroepiploic vein, the blood will get back to the heart by way of the esophagus and in effect a portal hypertensiolike syndrome is produced.

We then put this thesis to work in the dog. In Dr. Wangenstein's laboratory it has been found that in order that complete protection from the ulcer diathesis be obtained, one must do the following things in a gastric resection for peptic ulcer: (1) a 75 per cent gastrectomy, (2) removal of the antrum, (3) removal of the entire lesser curvature, (4) a short loop anastomosis. When these criteria were applied to a dog with a splenic tie and the dog was given histamine and beeswax for three to five days, no protection was obtained. In other words portal hypertension greatly accelerated the ulcer diathesis. In fact so much so that a normal dog will easily get ulcers in five days if cellophane is placed around the portal vein.

We then came to the conclusion that in portal hypertension an even greater resection would be necessary. We therefore gave a series of sixteen animals that had had a 90 per cent resection and splenic tie procedure, histamine and beeswax for a period of five days. All the animals except two were protected against the ulcer diathesis. In other words a 90 per cent resection could afford protection in the great majority of animals, but not all. One must therefore do either a total gastric resection or something closely akin to such a procedure, in order to protect against the bleeding ulcer diathesis associated with portal hypertension. In addition to removing the stomach, the spleen is also removed. Thus, three things are accomplished: (1) the acid peptic factor is removed, (2) there is a separation of the stomach and portal blood flows, (3) about 40 per cent of the inflow of the portal vein is removed.

DR. C. J. WATSON: This is a subject I have been interested in for a long time. I was glad Dr. Rea pointed out that there is such a thing as primary splenic fibrosis. In recent years, clinicians and pathologists alike have often said that what we have called Banti's disease is simply a congestive splenomegaly. Granting that this is true in the majority of cases, I have nevertheless seen a number of instances of diffuse splenic fibrosis with

esophageal varices in which there was no evidence of cirrhosis of the liver, nor of disease of the portal vein. I believe, therefore, that there is a relatively small group of cases of primary diffuse splenic fibrosis. I recall one young man about twenty years of age with a large spleen and repeated hematemesis. Liver function was quite seriously disturbed (this case was studied in the days before we were doing liver biopsies). He died, and at autopsy his liver appeared histologically normal. No evidence of disease in the portal or splenic vein was found, but he did have esophageal varices.

The rationale of gastric resection for hematemesis due to bleeding varices is quite interesting to me. I can remember quite a number of instances of bleeding varices seen at autopsy; if one does find the place that bleeds, it is usually nothing more than a little slit in the varix. If one ties off the great veins *in situ* before the gastrointestinal tract is opened, one has a much better chance of finding the bleeding varix. I have yet to see a peptic ulcer or anything resembling it in a bleeding esophageal varix, although it is true that a few such instances have been recorded. I would say that, by and large, the cause of bleeding from an esophageal varix is an injury of the wall of the vein. With the little protection these veins have, it is not too remarkable that a slight injury can cause a tear or slit sufficient to produce a massive hemorrhage. It should be noted that these patients commonly have hypoprothrombinemia and/or thrombocytopenia, to contribute to further bleeding, once started.

To try to carry out any major surgical procedure in a patient with cirrhosis of the liver is to invite disaster. They do not tolerate anesthesia or prolonged operations at all well. They easily develop hepatic coma after a surgical procedure. I think it necessary to wait a long while and accumulate a large series before any individual method of treatment of bleeding varices can be judged. It is well known that there may be long intervals, even several years, between bleeding episodes in these cases.

Cirrhosis may be present for years in relatively static condition. Ascites, with or without jaundice, no longer offers the fatal prognosis in all cases, which used to be assumed. In fact, cirrhosis isn't quite as bad as we used to think it was. The fatty cirrhosis group, related to alcoholism and dietary deficiency, responds remark-

ably well to a good diet, if not too far advanced. The bleeding varix problem, however, is a bad one, and we don't have very much to do for it medically. The suggestion has been made that direct tamponade of the varices by means of an inflated condom type balloon might be effective, and in fact, I believe that Dr. Hoffbauer has been successful in stopping bleeding with this method, in some cases.

DR. CLARENCE DENNIS: I would like to ask if you have any information on liver function after anastomosis of the portal vein and the vena cava.

DR. WATSON: Not a great deal. Dr. Hanger tells me that in some instances there has been a remarkable improvement in liver function, the cephalin flocculation and serum bilirubin at times decreasing significantly. Since Dr. Hanger is a very careful student of liver disease, I am willing to accept the idea that at least some of these individuals do have their liver function improved by diverting the portal blood flow.

DR. REA (in closing): The purpose of the gastric resection in bleeding varices would be: (a) to reduce the acid peptic factor of gastric secretion, which we know is important in the causation of erosions of the esophagus, and (b) to bring about an additional reduction of blood inflow into the portal vein over that attending splenectomy.

The source of hematemesis in portal hypertension is of interest. Bleeding esophageal varices are considered the most common cause. While esophageal varices may bleed from trauma, in the light of our experimental knowledge, it is plausible that gastric acidity may cause erosions of the esophagus and cardia of the stomach with resulting bleeding without any trauma factor. It should be noted that patients with obstruction of the superior vena cava exhibiting esophageal varices apparently do not bleed. Also it has been reported that patients with unrelated diseases like coronary disease may have esophageal varices.

Given a patient with bleeding esophageal varices, with fairly good liver function, if the bleeding could not be controlled by conservative methods, I should feel safer performing a total gastrectomy at the present time rather than doing any of the other procedures.

CANCER GRANTS TOTAL MILLION AND THIRD DOLLARS IN WEEK

Federal cancer grants totaling slightly more than one and one-third million dollars were announced in the last week. Seven universities and hospitals get \$575,000 for construction of research, facilities, thirty-three schools get \$522,000 for teaching purposes, and the remaining \$301,159 goes for control projects in twelve states. Institutions sharing in construction grants are North Carolina University; South Carolina Medical College; Wayne University; Children's Medical Center of Boston; Beth Israel Hospital, Boston; Boston University School of Medicine; and Iowa State University, College of Medicine. . . . Over the past twenty-five months,

U. S. has approved grants of \$210,000,000 toward construction of 1,019 hospitals and health centers under the Hill-Burton Act; total cost of the projects is more than half a billion dollars, with the difference financed by state, local and private institutions. Only 139 of the institutions are in operation now, the remainder under construction or in the blueprint stage. . . . Water pollution grants to states and interstate agencies are expected to total just under one million dollars for the fiscal year ending June 30.—A.M.A., Washington Office, March 14, 1950.

PSYCHIATRY IN GERIATRICS

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BECAUSE of the scope of the problem of the aged, it is felt worthwhile to review certain psychiatric aspects of geriatrics.

It has been estimated¹⁴ that whereas in 1900 4 per cent of the population of the United States of America were over sixty-five years of age, and in 1935 6 per cent, by 1980 approximately 14 per cent will fall in that age group. Between 1930 and 1940 the increase in persons over sixty-five was 35 per cent, whereas the increase in the general population was only 7.2 per cent. The United States Bureau of Census reported that in 1940 there were 8,956,206 persons more than sixty-five years of age.

"White men now at the age of sixty-five can expect to live an additional twelve and one-half years and white women an average of fourteen and one-half years."¹⁰

To quote Doll⁵: "Our goal should be to insure that the major share of added years will lengthen the period of prime rather than prolong the periods of dependent youth and decrepit old age. We may welcome rather than fear the prospect of long life only if the accumulated years are worth living by adding to the sum of usefulness and happiness of human life throughout its whole span."

Maladjustments and behavioral breakdowns, psychiatric problems, occur at a high rate in the age group sixty-five and over. These include the less severe psychiatric disorders such as maladjustments in the mentally normal, mental aberrations, benign abnormal sexual behavior, alcoholism, and certain psychoneurotic manifestations. More grave psychiatric disorders, such as frank psychoses and severe reactive depressions, also occur. Physical, social, and psychological factors are involved in their production.

As elsewhere in the body, certain alterations occur in the brain with advancing years. Numerous changes begin in all layers of the cerebral arteries.¹ The larger arteries show an extensive intimal arteriosclerosis and a medial fibrosis. Similar alterations occur in the smaller vessels. They lead to narrowing of the lumen of the vessel with resulting ischemia and encephalomalacia

of the area supplied, and to increased fragility of the vessel walls. The meninges become thickened and opaque, and cerebral atrophy occurs, particularly in the frontal lobes. Diffuse nerve cell changes, senile plaques, and less frequently neurofibrillary degeneration as well as the vascular changes are seen microscopically.

Since some brains show more evidence of these changes at age fifty than others at age seventy-five, it is obvious that chronological age is not the only element at work here. Heredity as well as various other factors influence this aging process. These alterations need not lead to psychiatric symptoms.

Changes incident to aging of other parts of the body are important. Impaired absorption from an atrophic gastrointestinal mucosa and loss of teeth, with resulting undernourishment and vitamin deficiency, are significant as are decreased kidney function, endocrine imbalances⁶ and auditory and visual impairments. Physical illnesses and injuries act as causative agents in psychiatric geriatric problems. They may precipitate the physical changes of the aging process in the brain and elsewhere in the body. Again they may be the direct etiologic factor of the disorder, as for example in psychoses due to brain trauma, due to brain tumor, and in many other psychoses of the organic reaction type.

Social elements play a role in producing maladjustments and behavioral breakdowns in the aged. The older person finds himself progressively shunted away from both his work group and his family setting. Employment is difficult for him to retain, and once it is lost, extremely hard to obtain. Members of his family group tend to scatter into distant areas. His friends and relatives progressively move away or die. He finds himself more and more without firm social ties.

One etiologic factor of a psychologic nature is the underlying personality makeup. It would appear that persons of a stable personality tend to withstand considerable amounts of cerebral damage and environmental pressure without exhibiting serious psychiatric manifestations, whereas individuals who have been poorly adjusted or inadequate earlier in life are more likely to fare

¹Inaugural thesis presented at the meeting of the Minnesota Academy of Medicine, December 14, 1949.

badly under such attacks. Evidence is increasing that social and psychological factors are very significant in the etiology of these problems.^{12,13,15,16,20}

Many persons live to advanced years with little apparent interference with their mental functioning. However, frequently simple adult maladjustment occurs in such persons. When it does, it resembles the same syndrome as seen in earlier periods of life. When mental changes do appear, they are of one or usually more than one of three types—intellectual impairment, affective abnormalities, and conduct disorders.

Certain alterations may be considered within reasonable limits to be evidences of normal aging. These limits admittedly are hard to define. They may be termed "mental aberrations." Some are essentially exaggerations of previously existing personality traits. The person fatigues very readily on physical or mental exertion. He is less alert, less able to concentrate over periods of time, less able to assimilate new knowledge, and less able to retain experiences of all types and to recall them at will. A narrowing of the span of interest and fixation of ideas, especially upon bodily health, may often be noted. Emotional instability may be exhibited in easy and excessive swings of mood, irritability, unwarranted feelings of well-being with boasting, or in some instances by more or less prolonged periods of mild depression. At times mild feelings of persecution or unwantedness, i.e., paranoid trends, may be seen. The attitudes of others may be a basis for these trends, or feelings of, or fears of his own disintegration with attendant anxiety may be projected into the environment. Overtalkativeness and reminiscing, selfishness and self-centeredness, resistance to change and willfulness may be apparent. Abnormalities in eating habits, including overeating or refusal to take adequate nourishment, are common. Untidiness about the body and the clothing and carelessness in toilet habits may present themselves.

Benign abnormal sexual behavior may appear as one of the mental aberrations or as the chief problem of an otherwise quite well adjusted aged person. It is not uncommon to find such persons who are not frankly psychotic exhibiting their external genital organs or fondling the external genital organs of others, particularly of the opposite sex. This form of behavior is more common in males than in females. Old men frequently annoy or

molest young girls. They make no attempt or poorly conceived attempts to conceal their acts. The resumption of masturbation and the reappearance of desire for sexual intercourse with or without functional potency may occur in advanced years. The latter may lead to ill-advised marriages. Such activities are preferred to as benign in contradistinction to attempted rape, rape and even more serious "sexual crimes" committed by elderly persons who are seriously disordered mentally.

The basic factors lying behind the production of geriatric psychiatric problems may lead to a picture colored chiefly by alcoholism, or again alcoholism which began earlier in life may continue into old age. Its treatment demands the employment of proper methods for the withdrawal of alcohol, a plan of management such as other maladjustments and behavioral problems require, and in some instances more formal psychotherapy.

In geriatric patients the neuroses or psychoneuroses may appear superimposed upon the background of symptoms referred to as normal in aging persons, or they may be manifested by individuals who are sound mentally. The symptoms are chiefly hypochondriacal in nature, although anxiety states and simple reactive depressions are not infrequently seen. Here again, in addition to other general measures of management, more formal psychotherapy may be required in their treatment.

A plan for the prevention of and management of these minor psychiatric disorders of the aged must include adequate attention to the individual's physical needs and the meeting of his psychological and social needs. The family, the individual himself, industry, the community (government) and medicine and its allied sciences each have responsibilities in such a program.

Any consideration of the physical needs of older persons must center about the prevention insofar as is possible of the development of and the progression of chronic diseases, the treatment of such diseases, the correction insofar as is possible of physical defects and attention to adequate nutrition.

The prevalence of chronic disease increases with age although it is well recognized that it is not a feature of old age alone. The most important of the chronic diseases are various forms of heart disease, arteriosclerosis, essential hypertension, nervous and mental disease, kidney disease, tuber-

culosis, diabetes, and asthma. Increasing attention is being given to the provision of adequate facilities for the care of persons suffering from such diseases in chronic disease hospitals, maintained usually as integral parts of general hospitals, and in convalescent and nursing homes. However, the fact remains¹⁷ that the majority of persons who are chronically ill can be best cared for at home and in the office and clinic. Rehabilitation rather than attention to acute needs must be the keynote of the treatment of these diseases.

Defects in hearing and vision should be corrected insofar as is possible. Proper dental care is highly important. Other physical defects such as certain surgical conditions and the physical sequellae of cerebral vascular accidents and other neurological disorders demand rehabilitation.

The importance of adequate nutrition at this age and the problems involved, including the administration of supplemental vitamins, has been stressed^{8,18} in the literature.

Concurrent with efforts to provide him with the best possible physical health, a program of attention to the psychological and social needs of the individual must be pursued. A major share of this program must be carried out by the family. They must be taught the nature of the patient's psychological needs. These have been delineated by Laycock¹¹ as:

1. The need for affection. To live in reciprocal warm regard with one or more human beings.
2. The need for belonging. To be a desired and desirable member of a group.
3. The need for independence. Reasonably to order one's own life and make one's own decisions.
4. The need for achievement. To do things, to accomplish tasks, to create things and to find success.
5. The need for recognition. To feel that one's personality and conduct meet the reasonable approval of one's peers.
6. The need for self-esteem. To feel that one's personality and conduct come up reasonably well to one's own inner standards.

It is the duty of the family or the family substitutes to help older persons fulfill these interdependent and somewhat overlapping needs.

The need for affection is marked. Frequently his mate, many of his friends and associates of his own age and even some of his children have died or are no longer near him. Those about him must provide him with a feeling of emotional security. If they do not, the aged person seeks to

gain attention, usually without realizing it, by exaggerating his physical illnesses and other handicaps and by complaining that no one ever tells him anything, that no one cares for him, and the like.

The need for belonging obviously shades into the preceding need. The older person must be made to feel that he is a wanted member of a group, ideally of a family group. The younger members of the family should, where possible, include the older person in their activities. Where this is not feasible, he should be informed in advance what the others plan to do and why he cannot participate in the activity.

The loss of independence is very difficult for anyone to accept. The older person loses much of his feeling of independence when he is forced to give up his life's work. Children err as often in the matter of overprotection as they do in failure to show affection. The older person resents being watched too closely, being told to be sure to dress warmly, to stay out of the rain, to stay out of the sun, to eat more, to eat less, and the like. These admonitions should be kept at the minimum consistent with not seriously damaging his health or life. Again an older person's feeling of dependence is increased by telling him directly or by implication that he is not wanted in the home, that he is being tolerated there, or that he should be happy that his family is making such a sacrifice to give him a "good" home. The aged person should wherever possible maintain his own residence to avoid such emotional strains.

The need for achievement is closely connected with employment and other work or activities such as hobbies in which the older person may engage. Failure to attain some degree of success in such outlets leads to maladjustments or more severe reactions.

Again the need for recognition and approval is tied in with accomplishment and usefulness. Whenever the older person does enter into activity, he should be complimented by those about him. If the only accomplishments he can point to are those of the past, hear him out even though the story has been heard many times before. He should be complimented on past achievements as well as present ones.

It is hard to surrender our place of activity in a fast moving world, to accept the fact we are deteriorating physically, that we are less alert, that we cannot concentrate as we did before, that

we forget recent events to our embarrassment, that we are resistant to change—and still retain our self-esteem. The family and those about the aged person must make every effort to help him meet his other psychological needs in order that he may retain his self-esteem.

In dealing with an older person, all the psychotherapists, including psychiatrists and other physicians, ministers, professional counselors, social workers, volunteer social workers, employers and the family, must take an optimistic attitude toward him. They should emphasize the compensations of getting older. These are: (1) accumulated wisdom; (2) ability to balance the new against the old and to give advice; (3) the wealth of experience they have to draw upon, and (4) the value of leisure time.

Let us consider now the attitude which the older person must take toward old age if he is to adjust well in the family setting or its substitute. He must be brought to accept the fact that he must lead a balanced life. In other words, he must accept the fact that as he grows older the proportion of his time spent at work must decrease and the time spent in resting and sleep must be greater, as must be the time spent in recreation, hobbies, and just plain leisure. He must be brought to realize that the world and the ways of life are constantly changing and that the changes are more rapid now than when he was a youngster. Even then, as now, the ways of the grandchild seemed queer or even wrong to grandparents.

He must be led to realize that he must relinquish his control over his children and that the control of the grandchildren in the home is the problem of the parents, not the grandparents. The aged must be brought to look at old age as an opportunity to do new things and things he always wanted to do. He must learn to delegate responsibilities in his work and to prepare to give it up at least to a large degree.

Not all older persons can be brought to accept these attitudes, but many can. Oftentimes other persons than members of the family and the employer may be able to accomplish the engendering of these attitudes more effectively than those immediately concerned with him.

The matter of getting older folk to be active is worthy of some further consideration. Activity *now* should be encouraged rather than contemplation of past experiences and present problems. Participation in women's clubs, clubs for men,

hobbies including gardening, travel, collecting, radio, and the like, are possibilities. Interest in sports such as golf, bowling on the green when available, and spectator's sports may be fostered. This "push to activity," as it is often called, must be carried out under careful guidance. There is danger involved if some degree of success is not attained. As Barker² has pointed out, "When we excite our older patient to activity, physical, mental or social, the occupation recommended must be one that can be carried on with at least some feeling of success and without fatigue or exhaustion. Failure is only too likely to affect a patient dangerously. When the right occupation is found, the physician must watch the effect carefully, continuing, increasing, or diminishing the activity as seems best for the patient's welfare." The family and others may well aid the physician in this guidance if they are tactful.

Industry must recognize its responsibility to the older person. It must employ more older personnel. In 1890, 74 per cent of the aged were employed. In 1930 only 58 per cent were employed. The recent World War brought about an increase in employment in this age group, but now it has again decreased. In fact at present it is difficult for a man or woman past forty years of age to secure new employment.

The latest war demonstrated the value of older experienced personnel, many of whom were recalled from retirement. The older person should be retained as long as is possible as a teacher or advisor. He should be made to feel that his suggestions are valuable and sought. Retirement does not necessarily eliminate one as an advisor. It is felt that private pension and industrial insurance plans should be broadened and improved.

The community—government—must not shirk its responsibilities to the aged. There is a tendency for local units to slough the responsibility for older persons to the state and federal government. There has been an increasing trend toward committing elderly persons to institutions as senile rather than toward encouraging families and local governmental units to assume the fullest possible responsibility for them. The best possible environment should be provided. While the care of the aged in the family setting has been stressed, it has to be recognized that this environment is not always the best one. At times a home for the aged is better, or again a nursing or rest home, or a county home. Some require care in a general

hospital or a chronic disease hospital. Only when other care is not feasible should institutional facilities be employed.

Community centers for the aged providing suitable activities and guidance clinics should be fostered and developed. Their value has been demonstrated where they now exist.

Old age assistance plans are at present inadequate. We must provide the aged with the economic security to the fullest extent now possible.

It is the duty of medicine and its allied sciences to assist the aged person, his family, industry, and the community in every possible way in carrying out a program such as has been suggested. Its interest should not be limited to the individual brought to its attention but should be directed toward the vast problem as a whole.

Although it is true that the majority of the psychiatric problems of the aged may be classed as "minor," the matter of frank psychoses in the aged is rapidly increasing in size and importance. Whereas the minor disorders may usually be managed in homes, general hospitals and chronic disease hospitals, the psychoses as a rule require psychiatric hospital care. In fact, the increase in admission rates for such illnesses far exceeds the increase in population rates of this age group.⁵ The accumulation of aged persons has become one of the most difficult and one of the largest problems of such hospitals.

Psychoses due to infection and exhaustion, to exogenous toxins, such as drugs (especially bromide) and alcohol, to endogenous toxins, to syphilis, to Parkinson's disease, and to brain tumor occur in old age, as well as in earlier life. Their recognition depends upon their always being kept in mind by the physician. They are often overlooked or misidentified. Their proper treatment obviously depends upon their recognition. Special care and skill are required in their management. The percentage of psychoses of first admissions falling in this group is quite small.

The two main groups of psychoses occurring in this epoch are those due to disturbances of circulation, i.e., psychosis with cerebral vascular accidents, psychosis with cardiorenal disease, and psychosis with cerebral arteriosclerosis and senile psychosis. Of those due to disturbances of circulation, approximately 94 per cent fall in the group psychosis with cerebral arteriosclerosis.

Psychoses due to disturbances of circulation account for about 10.6 per cent of all psychoses

of first admission or about 14,000 such admissions per year in hospitals of all types in this country. Senile psychoses constitute about 7.8 per cent of psychoses of first admission or about 10,000 such admissions per year.

The early symptoms of psychosis with cerebral arteriosclerosis and senile psychosis have been described above under the term "mental aberrations." The hope from treatment lies chiefly in the proper therapy and management of the prodromal states. The clinical picture of psychosis with cerebral arteriosclerosis may be stated briefly as follows. As a rule the onset is gradual. Frequently physical complaints such as peculiar sounds or noises in the head, headache, dizziness, tremors, paresthesias, transitory apoplecticiform episodes, epileptiform seizures and aphasia precede or accompany the psychiatric symptoms. The psychiatric symptoms may appear suddenly following injury, illness or an epileptiform or apoplectic seizure.

Emotional instability becomes marked. Uncontrollable outbursts of laughing or crying or of anger are often seen. Persistent depression and paranoid delusions as well as anxiety states may occur. Confusion, disorientation, and memory defects are common. Carelessness about clothing, body and toilet habits becomes marked. Abnormal sexual behavior of a severe nature may appear. The patient is often restless both day and night, and he may be given to outbursts of violence. Aphasia not infrequently complicates the clinical picture.

In senile psychosis, too, the mental aberrations become progressively more pronounced. Confusion, disorientation, memory defects, fixation of ideas upon bodily health and upon past events, confabulations and delusions of a persecutory, grandiose or bizarre nature present themselves. Reversal of sleep rhythm, untidiness, incontinence and abnormal sexual behavior are common.

These two types of psychosis are often indistinguishable from one another clinically and pathologically. Patients with well-developed clinical pictures may present only minimal pathological changes. Again the reverse is often true.

The treatment of the prodromal stages has been stressed. When the frank mental disorder appears, hospitalization usually becomes necessary. Careful attention to physical illnesses and defects, adequate nutrition, attention to elimination, occupational therapy and proper institutional environ-

ment are important. These patients should be cared for in one-story buildings especially designed for their use. All activities should be geared to a tempo suited to them. They should not be subjected to the pressures of the more active wards of the hospital. All employees concerned with their care must be aware of the physical and mental limitations of such patients and must be very tolerant and understanding of them.

Studies have been made to determine what happens to patients in these two classifications after admission to mental hospitals. For example, Camargo and Preston³ reviewed 683 psychoses of first admission, each of whom was over sixty-five years of age upon entering Maryland State Hospitals. They found that 85 per cent were classified as psychosis with cerebral arteriosclerosis or senile psychosis. They noted that 16.7 per cent died within the first month, 47 per cent died within the first year and 66 per cent died within three years after admission. At the end of three years 66 per cent had died, 10 per cent had been discharged and 24 per cent remained in the hospital. The duration of life of these patients was shorter than the average duration expected for the general population of the same age group.

Where the basic etiologic factor is irreversible changes in the brain structure, true recovery is not possible. However, where other physical factors and psychological and social pressures are the chief causative factors, recovery is possible. Palmer¹⁵ pointed out that there is a group of patients diagnostically distinguishable from true psychoses with cerebral arteriosclerosis and senile psychoses only by the results of treatment in whom the prognosis is good. His study was based upon 123 cases legally committed to a mental hospital and diagnosed as psychosis with cerebral arteriosclerosis, or senile psychosis, after three or four weeks of hospitalization, general treatment and observation. He found that nearly 25 per cent achieved social recoveries and returned to their former occupations or to their homes. Palmer stressed the need to eliminate any infectious, toxic and exhaustive factors.

In addition to the types of frank mental disorders of old age considered, there remains a group composed of manic depressive reactions, late involutional melancholias, paranoid states especially with depressive features distinct from cerebral arteriosclerotic and senile psychoses with

paranoid trends, and severe reactive depressions, in which the use of electroshock therapy is often of great value.

Gallinek,⁹ Feldman et al⁷ and others have described the methods of treatment, the contraindication and the results obtained. One may cite as an example of the results obtained Gallinek's⁹ report of seventeen cases. Of these seven showed complete recovery, two marked improvement, one no improvement, and five recovery or improvement with subsequent relapse. The value of maintenance electroshock therapy in those who relapse was stressed.

Many articles have appeared in the literature concerning cardiovascular pathology in its relationship to electroshock therapy. Our own experience leads us to agree with the conclusions of Kalinowsky and Hoch,¹⁰ and Rowe and Schiele.²¹ There is some degree of risk in using this form of treatment in persons with normal hearts, and this risk is increased in patients with abnormal hearts. The status of the heart may be determined by an internist. However, the psychiatrist must weigh the cardiac risk against the psychiatric problem and determine on the basis of his knowledge of the psychosis and his experience with convulsive therapy whether or not electroshock treatment should be used. Experience has shown that patients with moderately severe cardiac disease can tolerate this form of therapy.

In the group of psychotics under consideration, the problem of differentiating between a true irreversible psychosis and one which has a reasonable outlook for recovery or marked improvement is more difficult than that of assaying the physical risks involved in electroshock therapy.

In advising the family or friends of an elderly patient who presents a psychiatric problem, the physician should keep the following points in mind: Guardianship should be instituted in some instances for purposes of controlling the activities and the finances of the individual. This step should be taken for the patient's benefit, however, rather than for the benefit of his relatives. One should not be too quick to advise commitment to an institution. Consideration should be given to the possibility of providing adequate care at home, in a rest home, a county home, in a home for the aged, in a general hospital, or in a special hospital for the chronically ill.

It should be remembered that not every person who presents a psychosis for the first time in old

age is suffering from a true cerebral arteriosclerotic or senile psychosis. The shortness of life after commitment should never be forgotten. The following things demand care in a psychiatric hospital: sexual acts which are not tolerable; marked untidiness, particularly of the body and in regard to urine and feces; paranoid delusions, especially where they center about individuals rather than groups and most particularly when these individuals are accessible to the patient; depression because of the danger of suicide; and intellectual deterioration when it has progressed to the point when the ability for self preservation is lost, or when it endangers the lives of others.

Summary

Certain aspects of the role of psychiatry in geriatrics have been reviewed. These included the scope of the problem of the aged, the factors involved in the production of certain of the less severe and of the more grave psychiatric problems of this age group, and the nature and management of these particular disorders.

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Discussion

DR. WILLIAM H. HENGSTLER, St. Paul: Dr. Gardner has covered this field so well in his paper that I have not much to add except to express my personal appreciation of his presentation. It is extremely important for the psychiatrist to give intelligent advice to families as to what they should do with elderly fathers or mothers. The individual case cannot be decided by a textbook or by a fixed rule.

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PARATHION POISONING

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PARATHION is one of the new organic phosphates which are finding so much favor as insecticides. It was developed by the Germans during the last war. Details of this chemical were taken to England and first reported in the British Intelligence Objectives Report in 1946.

Parathion is a synthetic chemical, diethyl-nitrophenyl thiophosphate ($C_{10}H_{14}O_5PSN$). Chemists in the United States were soon able to produce it in commercial quantities, and it has become recognized as a valuable weapon in the fight against insects. The name parathion was selected by the Inter-Departmental Committee on Pest Control. It has been marketed under such trade names as: alkron, aphamite, durathion, genithion, niran, par, paradust, parakill, paraphos, penphos, phos kil, planthion, thiondust, thiophos and vapophos and is now becoming quite widely used.

Parathion is a heavy, syrupy liquid which is usually dark brown in color. It is only slightly soluble in water, but is readily miscible with many organic solvents such as ethers, alcohols, acetone, carbon tetrachloride and animal and vegetable oils. It is quite stable in neutral or acid solution, but is rapidly hydrolyzed by alkalis and soaps.

Parathion is usually formulated as a wettable powder of 15 to 25 per cent strength which may be mixed with water for application as a spray. It is also sometimes formulated for application as a dust in 1 or 2 per cent strength.

Parathion has outstanding insecticidal properties. For cockroaches it is nearly twenty times as effective as DDT, and more than 200 times as effective as nicotine. When properly applied, it has no injurious effects to plants, but because of its low solubility in water, it remains for some time as an effective insecticide residue.

Unfortunately, parathion is also very toxic to warm-blooded animals and man. Animal experiments have indicated that ingested dosages of 2 to 10 mg./kg. of body weight are lethal. The toxicity for man has not been established, but it probably is of the same order. Parathion is readily absorbed through the skin, and near fatalities and deaths have been caused merely by

splashing it on the skin and neglecting to wash it off promptly. It may also find entry by inhalation or by way of the gastrointestinal tract.

Because of its high toxicity, parathion is not suitable for home and garden use. It should only be used by large scale commercial growers or professional sprayers who are prepared to take all the precautions necessary. Warnings and details of protective measures are marked on the cans and packages by the manufacturers, who are well aware of its dangers.

The pharmacological action of parathion appears to be dual. One effect is stimulation of the parasympathetic nervous system. The other is an anti-cholinesterase activity. There appears to be an irreversible destruction of the enzyme cholinesterase. As a result of this action, acetylcholine accumulates and continues to stimulate the parasympathetic nervous system, producing effects resembling those of both muscarine and nicotine.

Signs and Symptoms

Common symptoms are excessive salivation, lacrimation and sweating, headache, dizziness, nausea, vomiting, abdominal cramps, diarrhea or constipation, tightness in the chest, shortness of breath, blurring of vision associated with a constricted pupil and difficulty in accommodating for distant vision. There may be bronchial spasm and pulmonary edema resulting from capillary dilatation and excessive glandular secretions into the bronchi and bronchioles. There may be spasms of the voluntary muscles or even convulsions. Excitement of the central nervous system may be followed by depression, loss of reflexes, coma and death by failure of the respiratory center. In some cases, death may be due to bronchial constriction and cardiovascular collapse associated with pulmonary edema.

Diagnosis

A correct diagnosis depends largely on knowing that the patient has had an exposure to parathion. If some of the above symptoms and signs are found, poisoning with an organic phosphate

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should be suspected. Ten c.c. of blood in citrate may be tested for cholinesterase. If cholinesterase is found to be considerably reduced, it is useful confirmatory evidence.

Treatment

Prevent further absorption by immediate washing of the contaminated area with soap and water if the mode of entry is through the skin. Empty the stomach by inducing vomiting, or wash it out with a stomach tube if the poison has been ingested. If there is dyspnea or evidence of pulmonary edema, the patient should be placed in an oxygen tent at once.

The most useful specific remedy is atropine, which blocks the parasympathetic effect on the heart and lungs. It should be given as early as possible after a diagnosis is made, and in doses of 1/75 to 1/50 of a grain. The atropine should be repeated every hour or so up to ten or twelve doses in a day if necessary to control respiratory symptoms and keep the patient fully atropinized. Dilatation of the pupils should be achieved. The atropine may be given intramuscularly or intravenously.

Atropine can completely protect the air way, but it should be remembered that if pulmonary secretions have accumulated before atropine becomes effective, it may be necessary to turn the patient upside down for drainage, or suck the secretions out with a catheter. The patient may be too weak to cough. Muscular weakness may be so great that he cannot even breathe. In such circumstances, artificial respiration must be carried on. Atropine does not control the muscular weakness nor twitching of the muscles.

Morphine, of course, must not be given. Some protection of the myoneural junction against the nicotinic effects of parathion is afforded by magnesium sulphate, which effect is believed to be due to the magnesium ion. The usual dose of magnesium sulphate is 10 to 20 c.c. of a 10 per cent solution given slowly intravenously.

The acute emergency lasts twenty-four to forty-eight hours. During this time, the patient must be watched continuously. After danger appears to be past, the patient must have several more days of absolute rest. Further contact with organic phosphates must be avoided for at least two weeks, as the patient remains very susceptible to further poisoning during this time. The explanation offered is that symptoms disappear

when the body's supply of cholinesterase is only partly replaced. During this period of partial replacement, it takes very little parathion to destroy the small amount of cholinesterase which has accumulated and precipitate another acute attack.

So far as is known at present, recovery from parathion poisoning is complete with no residual complications. Chronic poisoning has not been encountered. Small repeated doses of parathion, however, may bring about depletion of cholinesterase, so that when symptoms do develop they may seem to be precipitated by an exceedingly small recent exposure.

Workers with parathion may request a supply of atropine for use in an emergency. There is danger in granting such a request. Atropine, if taken before exposure, will mask the symptoms. Workers, if given atropine, should be warned not to take it until after symptoms develop. They should be warned that if symptoms develop, they must stop work and seek help immediately and not depend upon atropine to protect them.

Manufacturers of technical grade parathion are well aware of its dangers, and have the facilities and trained personnel to handle it safely. The formulation of 15 to 25 per cent wettable powders for making spraying mixtures and the formulation of 1 or 2 per cent parathion dusting powders may be undertaken by small manufacturers who are not experienced in the handling of such toxic chemicals. Exposure of workers in these plants on the one hand and exposure of farmers, fruit growers, sprayers and airplane pilots on the other, are the concern of the industrial hygiene divisions of the various state and federal public health agencies.

Prevention of over-exposure is possible in carrying out the normal operations of formulating wettable and dusting powders, and applying the insecticide, if proper precautions are taken.

In the plant, careful planning of the operation so that the processes are as far as possible automatic and isolated is essential. General and local good ventilation must be provided. Adequate washing and showering facilities are required. It is also the plant's responsibility to provide freshly laundered protective clothing every day. The plant must carry out a proper training and educational campaign.

In general, the following protective measures should be carried out by all users of parathion and other organic phosphates.

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1. Wear only protective clothing at work and such underwear and socks as will be changed and laundered daily. Protective clothing includes coveralls, rubber gloves, shoes, caps, goggles and a respirator.

2. If liquid preparations are used, additional waterproof material must be worn, such as rubber apron or waterproof cape and hat and rubber boots.

3. Protective clothing must be changed and laundered daily. Waterproof materials must be thoroughly washed in soap and water at the end of each day.

4. Careful washing of the hands and face with soap and water before eating or smoking.

5. Never eat, smoke nor chew in an atmosphere containing parathion, and keep all food and lunches where they cannot be contaminated.

6. Thorough cleansing of the whole body at the end of each shift by shower bath and liberal use of soap.

The respirator which is to date most satisfactory for general use is parathion respirator, Mine Safety Appliances Company, No. Cr. 49290. Replacement cartridges are No. Cr. 49293 and replacement filters are No. Cr. 49294.*

Airplane pilots applying spray and others applying parathion aerosols, and workmen preparing high concentrations or mixing the chemical with carriers other than water, should use full-face gas masks.

If an accident occurs, such as breakage of equipment, releasing a spray of solution onto the clothing, or accidental inhalation of dust or vapors containing parathion, the following steps should be taken:

1. Immediate removal of wet clothing and thorough washing of the affected part with soap and water.

2. Notify the plant doctor or patient's private physician of the exposure.

*Other suggested respirators are:
Mine Safety Appliances Co.—Chemical Cartridge Respirator No. Cr. 45779.

Wilson Products Co., Reading, Pa.—Chemical Cartridge Respirator, No. 701.

American Optical Co., Southbridge, Mass.—Chemical Cartridge Respirator No. R-5055.

3. Send the worker home for compulsory bed rest for twenty-four hours or so.

4. Detail a relative or someone to watch him, who will notify the doctor if symptoms of poisoning occur.

If an accidental spillage of parathion liquid occurs in a plant, it should be cleaned up immediately by absorbing it in sawdust, and then bury or burn the sawdust. The floor where the spillage occurs should then be thoroughly cleaned using an alkaline solution.

If a powder containing parathion is spilled, it should be cleaned up with a vacuum cleaner and the contents of the cleaner burned.

Containers in which parathion has been shipped must never be used again. Metal containers should be punched full of holes and placed in a private disposal ground. Combustible packages should be burned as soon as emptied.

Further advice on protective measures is available from the Division of Industrial Health, Section of Environmental Sanitation, Minnesota Department of Health, University Campus, Minneapolis, Minnesota.

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INTRAVENOUS ADMINISTRATION OF PARA-AMINOSALICYLIC ACID FOR STREPTOMYCIN-RESISTANT TUBERCULOSIS OF THE TRACHEA

Report of a Case

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PARA-AMINOSALICYLIC acid (PAS) is a new antituberculosis drug which is effective against both streptomycin-sensitive and streptomycin-resistant tubercle bacilli. The following report of a case illustrates the efficacy of the new drug against tuberculosis due to streptomycin-resistant tubercle bacilli. It is of particular interest as most of the PAS was given intravenously to avoid the gastrointestinal irritation which usually develops when this drug is given orally.

lumen of the left main bronchus was stenosed to a pin-point opening so that the depth of this bronchus could not be examined. The right main bronchus appeared normal.

In spite of tracheal disease and the probability that the tubercle bacilli were highly resistant to streptomycin, pneumonectomy on the left was advised. This was performed on February 1, 1949, and at the same time partial thoracoplasty was done, parts of the fifth, sixth and seventh ribs being removed. The immediate postoperative course was satisfactory and on February 17, 1949, a second stage thoracoplasty was performed, parts of the second, third and fourth ribs being removed. During this time she was given 1 gm. of dihydrostreptomycin each day even though it seemed



Fig. 1(a) January 25, 1949. Extensive disease is shown in the left lung before pneumonectomy. (b) August 23, 1949. The results of pneumonectomy and thoracoplasty are evident. Change had not occurred on the right side.

Report of Case

A white woman, thirty-two years of age, registered at the Mayo Clinic on January 24, 1949. A diagnosis of tuberculosis of the left lung had been made in January, 1948. She had entered a hospital where she rested in bed and also underwent therapeutic pneumothorax on the left side. In spite of this, tuberculosis of the left main bronchus and of the larynx had developed for which she was given streptomycin, one course of 1 gm. daily for fifty-five days and another of 1.5 gm. daily for one hundred and twenty-three days. The laryngeal lesion healed but the bronchial lesion persisted, producing stenosis of the left main bronchus. In addition, tubercles developed in the left side of the lower end of the trachea. Stained smears of the sputum remained positive for acid-fast bacilli throughout the period of treatment. Diagnostic study at the clinic revealed extensive disease of the left lung (Fig. 1a), stained smears of sputum being positive for acid-fast bacilli. Bronchoscopic examination revealed ulceration on the left side of the lower 3 inches (7.6 cm.) of the trachea. The

probable that tubercle bacilli were resistant to this drug.

On February 22, 1949, bronchoscopic examination revealed persistence of the extensive ulceration in the lower end of the trachea, and stained smears of sputum were still positive for acid-fast bacilli. By this time it had been determined that the tubercle bacilli were resistant to streptomycin, the micro-organism growing in culture medium containing 100 micrograms of streptomycin per milliliter of medium.

Treatment with large doses of PAS was advised and to avoid the gastrointestinal irritation which this drug causes, the sodium salt of PAS (NaPAS)* was administered intravenously. On February 26, 1949, 4 gm. of NaPAS was given and the daily dose gradually increased until 30 gm. was being given each day. The total daily dose was added to 1,000 c.c. of 5 per cent glucose in distilled water and injected over a period of about eight hours. During the third month of treatment only 10 gm. of NaPAS was given intravenously each day due to an inadequate supply of the drug. This was supplemented by 14.4 gm. of PAS† administered orally each day in three equal doses. The total

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*The NaPAS was supplied by Cilag, Limited, Schaffhouse, Switzerland.

†The PAS was supplied by Dr. E. A. Sharp, Parke, Davis & Company, Detroit, Michigan.

TABLE I. CONCENTRATION OF PAS IN BLOOD SERUM AT INTERVALS DURING A PERIOD OF TWENTY-FOUR HOURS*

Hours after beginning injection	Concentration of PAS in blood serum (milligrams per 100 c.c.)	
	Free PAS	Total PAS
4 1/4	32.0	28.6
11	4.9	6.4
24	<1.0	<1.0

*In the first seven and a third hours the patient was given 30 gm. of NaPAS intravenously.

dose of PAS during the three months of treatment was 1,646 gm. of NaPAS given intravenously and 452.7 gm. of PAS by the oral route.

There was a dramatic response to this treatment. On March 23, 1949, a bronchoscopic examination revealed marked healing of the lesion in the trachea with only a small ulcerated area remaining just above the orifice of the stump of the left main bronchus. The ulceration extended down into this stump and was covered with a grayish-white exudate. Stained smears of sputum which had been positive persistently for acid-fast bacilli during the first month after pneumonectomy were now negative. However, cultures of sputum at this time proved to be positive for acid-fast bacilli.

After two months of treatment with PAS a bronchoscopic examination revealed complete healing of the tracheal ulceration. The orifice of the left main bronchus was slightly inflamed and bled a little when touched with forceps. A cultured specimen of the bronchial secretions obtained at this time did not show acid-fast bacilli to be present. After the third month of treatment had been completed, bronchoscopic examination did not reveal evidence of tuberculosis. The orifice of the left main bronchus appeared as a small dimple in the lateral wall of the lower portion of the trachea. The mucosa appeared normal but bled on bronchoscopic manipulation. Six specimens of sputum, gastric washings and bronchial secretion were cultured. Negative results were obtained from 5 cultures but 1 culture of sputum yielded a few colonies of acid-fast bacilli. During the three months of treatment the roentgenographic appearance of the right lung remained unchanged. At this stage of the treatment the patient left the hospital to continue rest in bed at home.

She returned to the clinic on August 22, 1949, for reexamination, having had no symptoms during the interval. A roentgenogram of the chest (Fig. 1b) did not show any change when compared with the film made in May, 1949. A bronchoscopic examination revealed no evidence of active disease. The stump of the left main bronchus still appeared as a small dimple on the left in the lower portion of the tracheal wall. The mucosa appeared normal and did not bleed on manipulation. No secretions were present. Bronchial washings were obtained for culture for acid-fast bacilli. Two specimens of gastric washings also were cultured. One of the gastric specimens yielded a few colonies of acid-fast bacilli but the results of the other 2 cultures were negative.

Evidence of toxicity to PAS was searched for carefully during and after the period of treatment but none was found. There was no sign or symptom of gastrointestinal irritation even when 30 gm. of NaPAS was given intravenously each day. The results of weekly blood counts, determinations of hemoglobin and urinalyses remained within normal ranges. Biweekly to monthly tests of renal and hepatic function showed no evidence of damage to the kidneys or liver. The prothrombin time varied from 19 to 23 seconds. There was some irritation of the veins with thromboses but it was possible to give the intravenous injection every day for 90 consecutive days.

The concentration of PAS in the blood serum and the

TABLE II. EXCRETION OF PAS IN THE URINE DURING A PERIOD OF TWENTY-FOUR HOURS*

Period of eight hours	Volume of urine, c.c.	PAS, gm.	
		Free	Total
First	1,100	17.0	16.6
Second	1,100	7.0	8.0
Third	200	1.5	3.4
Totals		25.5	28.0

*In the first seven and a third hours the patient was given 30 gm. of NaPAS intravenously.

excretion of PAS in the urine were studied* during a period of twenty-four hours in which the patient was given 30 gm. of NaPAS intravenously during the first seven and a third hours. The results are given in Tables I and II.

A streptomycin-sensitivity test was performed on each of the positive cultures for acid-fast bacilli. The microorganisms remained resistant to streptomycin throughout the period of observation. Sensitivity to PAS was also determined for all of the positive cultures. There was no evidence of increase in resistance to PAS, all of the cultures being sensitive to between 0.0045 and 0.072 mg. of PAS per 100 milliliters of culture medium.

Reexamination of the patient in December, 1949, revealed no evidence of active tuberculosis. Culture of three specimens of gastric washings and one specimen of bronchial secretions aspirated during bronchoscopy did not produce acid-fast bacilli.

Comment

It is worthy of note that a similar preparation of NaPAS was administered to two other patients by the intravenous route and in both cases acute hemolytic anemia developed after a few days of treatment. The preparation had been stored at room temperature for several months and analysis revealed that 24 per cent of the NaPAS had decomposed to meta-aminophenol and related compounds. For this reason it would seem wise to use only a freshly prepared solution of NaPAS for parenteral administration.

Summary

The sodium salt of para-aminosalicylic acid (NaPAS) was given intravenously in the treatment for a tuberculous ulcer of the trachea due to streptomycin-resistant tubercle bacilli which persisted after pneumonectomy. The ulcer was completely healed by the end of the three months of treatment, but gastric washings remained positive for acid-fast bacilli. The microorganisms were resistant to streptomycin and sensitive to PAS both before and after treatment. There was no untoward reaction to the medication except for venous irritation. However, a similar preparation of NaPAS given intravenously produced an acute hemolytic anemia in two other cases, probably due to partial degradation of the PAS to meta-aminophenol.

*With the collaboration of Dr. A. C. Bratton, Jr., Research Department, Parke, Davis & Company, Detroit, Michigan.

PSYCHIATRY IN GENERAL PRACTICE

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Case Presentation

THE patient was a forty-four-year-old white woman who was first seen at the office on August 16, 1949. Her chief complaints at that time were occasional dizziness, feeling of faintness, weakness and drawing sensation in both groins.

History revealed that she first noted dizziness about three months previously. She stated that she first noted her symptoms when she was sitting in church one Sunday and had gotten up quite suddenly. About three weeks before her symptoms had become more severe: the dizziness was much more marked, and the weakness, especially of the lower extremities, had developed. The patient stated that the difficulty in walking had become so severe that she would occasionally catch herself on a chair, table or the wall to prevent falling.

The patient was examined again at the office and it was felt that hospitalization was necessary, so admission to Naeve Hospital was arranged. While the patient was leaving the office she collapsed in front of the elevator and was found lying on the floor. She was apparently fully conscious, as shown by her response to questioning, but was unable to get up. After a brief examination which revealed no injury, she was taken to the local hospital and admitted September 26.

Past History.—The past history was essentially negative. She had had the ordinary childhood diseases but no serious illness or accident. She had had an appendectomy about ten years previously. The only significant finding in the past history was that the patient stated she had had a "nervous breakdown" while a student nurse about twenty years before.

Personal History.—The patient had completed high school (with difficulty according to the informant) and had started a nurse's hospital training. She stated she dropped out of high school in the second year because of a "nervous breakdown." The informant stated that she was obliged to quit because she had difficulty in her class work. Since that time she had been keeping house for her father who was a widower.

About eight months ago the patient's father remarried, and the patient stayed around home for a couple of weeks helping with the house work, but, for various reasons, she decided "to go out on my own." For the past six months she had been working at house work at several homes around her home town.

The patient mentioned on one occasion that she had a boy friend (aged sixty) whom she had been

going with for several years. She stated that on several occasions he had made advances and she had refused because she thought doing such a thing was a sin when they were not married.

Family History.—Her father is living and well. Her mother died twenty-five years ago, the cause unknown. Two brothers and three sisters are living and well. There is no family history of serious organic disorders, of familial diseases, or of nervous or mental disease.

Physical Examination.—Physical examination revealed a well-developed, slightly obese white woman in no acute distress. She walked into the office with a slight staggering gait and fell into the chair with a thud. Her speech was somewhat thick. Her temperature was 98.6°, pulse 82, blood pressure 170/100. Examination of the eyes revealed that the pupils reacted slowly to light but were equal in size. Reaction to accommodation was normal. Extra-ocular movements were normal except that slight lateral nystagmus of both eyes was noted. Examination of ears, nose and throat was negative. There was no cervical adenopathy and the thyroid was not palpable. Breasts revealed no masses, chest was clear, heart rate was regular and there were no murmurs nor enlargement. The abdomen was soft with no masses palpable. There was a right lower quadrant scar. Liver, kidney and spleen were not palpable. No inguinal adenopathy was noted. Examination of the pelvis and rectum was negative. Extremities were normal with no deformities noted.

Neurological Examination.—Neurological examination revealed:

1. Pupils equal but reacted slowly to light. Examination of remainder of cranial nerves was negative.
2. Lateral nystagmus of both eyes was noted.
3. Reflexes: (a) Absent abdominal reflexes. (b) All reflexes were equal but slightly hyperactive. (c) Babinski's sign was negative. Chaddock's, Rossolimo's toe signs were negative. (d) Patient exhibited a positive Romberg. On asking the patient to stand she would fall backward with jerking movements into a chair.
4. The motor system was normal. There was no paralysis or paresis noted.
5. Sensibility—no paresthesias. Position sense, vibration sense and deep muscle pain were normal.
6. Tests for co-ordination revealed no abnormality. F to F and F to N tests were normal.

Mental Status.—1. Mental Content—Patient appeared rational and was pleasant to interview. One observation noted was the apparent lack of concern about her disability. She answered questions readily and accurately but when not spoken to would move her lips as if speaking to herself. A certain amount of mental

Presented at the staff meeting of the Naeve Hospital, Albert Lea, Minnesota, November 14, 1949.

History was obtained from patient and informants. Informants were patient's father and stepmother. Part of physical findings, diagnosis and therapy reported was taken from letter from Mayo Clinic.

preoccupation was noted. No delusions, hallucinations or paranoid trends were elicited.

2. Sensorium and intellect—Patient was well oriented as to time, place and person. Memory was unusually good. Informant stated that patient had an excellent memory and that if any of the members of the family wanted to know about any dates or past events, the patient could give accurate details. Patient's general knowledge was fair, and thinking capacity as evidenced by simple calculations was slow but accurate.

3. Emotional tone—Patient exhibited no evidence of depression or agitation. She did present a somewhat indifferent and apathetic attitude toward her illness.

4. Stream of thought—normal.

5. Attitude and manner—well dressed, natural and open—discussed problems freely.

Laboratory.—Usual laboratory work such as urinalysis, blood counts, et cetera, were normal.

A spinal tap was done the day after admission and was negative.

Hospital Progress.—During the ten days of the patient's hospitalization, her status remained unchanged; symptoms did not improve in spite of ordinary psychotherapeutic methods such as encouragement, reassurance and mild sedation.

A differential diagnosis of multiple sclerosis of psychoneurosis, conversion hysteria, tension state, was made.

After ten days hospitalization it was decided to transfer the patient to the Mayo Clinic at Rochester for further investigation and therapy. She was admitted to the neuropsychiatric service of St. Mary's Hospital October 11.

Following is an excerpt of a communication from the staff doctor at Mayo Clinic in charge of the patient:

"Her general physical examination was essentially negative. A neurological examination revealed only a slight degree of horizontal and vertical nystagmus. This was considered to be of little significance with reference to her present problem since it was noted on a previous neurological examination in 1930. Her gait, though extremely bizarre, did not correspond to the disturbances seen with any ordinary neurological lesions. The nature of her gait plus her bland and somewhat indefinite attitude toward her symptoms strongly suggested the possibility of a severe neurotic reaction. She was seen in consultation in the psychiatric section and transferred to that section at St. Mary's for treatment. Her progress there has been somewhat slow. After repeated sessions under hypnosis her gait improved somewhat. It was noted, however, that her personality is so loosely organized and that her thought processes are often so illogical that she is unable to profit to any great degree from this type of therapy. Further observation has indicated that the patient is suffering from a severe conversion hysteria or possibly a schizophrenic reaction. A possibility of utilizing more heroic therapy such as electroshock treatments has been considered but the final decision has not yet been reached."

Patient was discharged from the neuropsychiatric service at the Mayo Clinic after about a month of intensive therapy with a diagnosis of "conversion hysteria, severe."

Therapy consisted of psychotherapy, occupational

therapy, physiotherapy, and hypnosis. She made a satisfactory recovery, with complete return of function of her lower extremities, and is now on her own doing well.

Discussion

It is estimated that about 50 per cent of all patients coming to a doctor's office are suffering from some sort of emotional and tension disorder. In most of these patients we are not dealing with major mental disturbances but with some conflict or problem which is manifesting itself in a psychosomatic complaint. Most of us practitioners are so busy diligently searching for some organic or structural disorder that we fail to observe or understand some simple problem in personality which may be causing symptoms. We usually concentrate our attention on disease, paying little attention to the patient as a person. We often-times have little regard for the factors which make the patient an individual distinguished from his fellows. Oftentimes we see nothing more in a patient than the sum total of a disease which has certain detailed symptoms, etiology, prognosis, pathological anatomy and medical or surgical treatment. More often the disease has been overemphasized and the patient overlooked. It is true that tremendous strides have been made in diagnostic methods, in laboratory methods and in medical and surgical treatment, but these advances only seem to accentuate the tendency to forget the individual. The emotional life of the patient, his family life, his economic and social situations may be very essential factors in understanding the symptoms which he presents.

It is the purpose of this paper to present some of the factors which make up a total personality, to show how the personality reacts to stress normally and abnormally, producing neuroses, to discuss the etiology, diagnosis and therapy of the most common psychiatric disorder encountered in general practice and to try to present some helps in psychotherapy.

The general practitioner has several advantages over the psychiatrist in dealing with the common psychogenic illnesses. First of all, he generally sees them in earlier stages when they are more amenable to therapy; and secondly, he can approach the patient as a general practitioner rather than as a specialist. The general practitioner may sometimes have more rapport with the patient since confidence in him has already been established—in other words, he is the "family doctor."

Only a small percentage of neurotic patients will be or need be seen by a psychiatrist, and for that reason it is becoming increasingly apparent that a greater integration of basic psychiatric concepts be accomplished by the general doctor to take care of the "other 50 per cent" of his medical practice.

The study of man's mental processes has lagged far behind the study of his anatomical, physiologic and chemical processes. This is most likely due to the fact that the mental factors are less tangible and less amenable to measurement and manipulation. It is also possibly due to certain deep-rooted superstitions and dogmas which have held sway the past centuries.

Psychosomatic medicine has made rapid advance the past ten to fifteen years and is placing new emphasis on the psychic and emotional life of an individual. It recognizes that what patients do and feel are facts no less than are the physical conditions observed. Emotional reactions of love, fear, anger and hate are just as real as are the organs of the body and are capable of producing prolonged, disabling and almost intolerable illness.

A pathologic anxiety can cause far more suffering than rheumatic cardiac lesions or uterine fibroids which a patient may have.

Psychiatric illness afflicts the largest single group of patients. While they occupy more hospital beds than all other groups, most of them are not in mental hospitals but are frequenting physicians' offices presenting multiple psychosomatic complaints. The time demanded by these patients often can be reduced in the long run by effective and disciplined management. The common disorders, tension states, reactive depressions, involutional melancholias and other emotional disorders should be recognized as such, and therapy for actual mental illness should be instituted instead of treating for some non-existent organic disorder with diagnostic placebos.

The future of psychiatry lies not so much in the salvage of the one million patients that crowd mental hospitals but in the application of psychiatry to all patients.

From the physician's personal point of view, at least a cultural knowledge of psychiatry has something to offer in a more rational appreciation of his fellowmen, in human relations, in a better understanding and perspective of himself and possibly in the matter of some aid in his own

personality development. Finally, there is something to be said for its downright interest, for a patient's mind can be as interesting as his colon.

At this point I will try to mention briefly some of the mechanisms involved in producing neuroses.

Psychiatry believes that the neurotic patient is not just an unfortunate individual who is a victim of bad fortune but that he is a person who retreats into his illness through stages which can be studied and whose course can be predicted. Basically the personality of the individual is disturbed in some way. It is difficult to define personality but according to leading psychiatrists it is made up of five major factors. The first part has to do with the physical structure of the individual, the second deals with his biochemistry, the third with the great field of emotions, the fourth with his behavior, and the fifth part has to do with his mind. These five factors make up the "total personality." Emotions include fear, anxiety, jealousy, hate, anger, sex, love, courage, faith, et cetera. A person's behavior is adjusted either by public opinion or the laws of the state and country. It is true that what constitutes adjusted normal behavior today may be a maladjusted state of affairs tomorrow. The elements which make up the mind are constant: attention, comprehension, intelligence, judgment, memory, insight, stream of thought, sensorium, et cetera—the chief element being intelligence. Any disturbance of any one of the five factors making up the total personality will tend to upset the balance between the others and cause maladjustment.

A neurosis arises in a person as a result of his reaction to the stress to which he is subjected. The stress is either *internal*, i.e., conflicts arising from feelings of guilt, hostility or frustration; or *external*, i.e., trauma of war, shock, grief, economic threat or environmental difficulty. Factors of emotional maladjustment are generally more potent in reacting adversely to stress and any personality will break down if this stress is sufficiently great. Against stress is aligned the patients' mental stability which can be compared to the physical resistance to infections and which make up his emotional maturity. His hereditary assets, his physical health and the sum of all his earlier cultural and intellectual training are also important factors in the emotional stability with which he resists stress. When these factors are exceeded, the equilibrium fails and compensatory mechan-

isms that are basically neurotic are mobilized. Symptoms then appear and indicate that the defense mechanism or mental stability has failed or has exceeded what is generally regarded as normal bounds. The personality is then said to be sick. Help from relatives, friends, physicians or perhaps quacks and cultists may be sought in the patient's effort to restore a satisfactory balance. Another alternative is that he may continue to live his disordered life. Peptic ulcers or ulcerative colitis may develop, he may become an alcoholic or complain of multiple physical symptoms, seek unnecessary surgical procedures, change jobs, wives or physicians or even resort to suicide. Basically then, the patient either develops mental mechanisms such as evasion, regression, sublimation, projection, rationalization, conversion or repression to escape the stress situation and/or subconsciously develops some physical manifestation as his symptoms.

Perhaps the most common psychiatric disorder encountered in general practice is the anxiety syndrome.

The anxiety syndrome was first described by Hecker in 1893, but it was not until after World War I that it received general recognition in this country. It has been known by many other terms such as nervousness, neurocirculatory asthenia, spastic colon, nervous breakdown, nervous exhaustion, shattered nerves, shell shock, et cetera. The picture varies in the number, character and severity of the symptoms. Every person is basically anxious and the severity depends upon the underlying personality foundation of the individual. The anxiety syndrome usually occurs in an individual who is inclined to be tense, uneasy, with transient attacks of palpitation, precordial discomfort, perspiration, dyspnea, weakness and faintness. The patient may complain of difficulty in sleeping, of being easily fatigued, of constant headache and often of pressure on the top of the head or a band around the head. He may lose weight, be irritable and worry without knowing why. Examination will usually reveal a tense, restless, uneasy individual with cold, clammy hands and feet. The pulse rate may be increased, the abdomen tender to palpation and the deep reflexes overactive. The differential diagnosis begins with a very careful physical, neurological and serological examination. One should be absolutely sure that the individual does not have either some structural disease of his body or the

central nervous system. The physician must be prepared to spend sufficient time in this to prove to himself and the patient that there is no organic disease. The anxiety state must be thought of as an exaggerated expression of the lack of function of the whole personality and treatment should be directed against those factors which are the cause. Attention should be paid to the environmental factors such as family difficulties, incompatibilities and worries. One should have a thorough understanding of the person's problems, his assets and liabilities. Engaging in a frank discussion of these problems and giving the patient an opportunity to express himself is a good form of therapy and is known as aeration, ventilation or mental catharsis. The initial interview should be adequate and lengthy enough so that the patient feels that the doctor is concerned and interested in his trouble. The patient should be told about the relationship of the symptoms to some underlying emotional difficulty, and it is important for the patient to be told that the symptoms are *not* imaginary but are the direct result of some emotional conflict. The wise use of sedatives plays a part in the therapy of the anxiety syndrome.

Lastly, I will try to summarize a few of the more common psychotherapeutic procedures and discuss briefly some of the methods used.

The approach to the patient must be passive, non-critical and in an interested manner. Don't immediately plunge into the depths of the patient's problem, because the instinctive reaction to this is one of defense and evasion. Don't begin by offering excessive or unwarranted reassurances. Don't be dominating or autocratic. Don't forcibly unwrap a patient without having some idea of his mental anatomy and without knowing how to wrap him up again. As one psychiatrist put it, "Don't do a mental laparotomy and leave the incision gaping open." The neurotic personality has defenses that have been built up carefully which serve as a protection against the ravages of anxiety, guilt and fear. Patients are readily made worse if these defenses are abruptly knocked out before adequate supports have been set up to replace them.

The interview should be guided to economize on time and it is usually more satisfactory than pushing the interview.

Questions such as "Would you like to tell me about your difficulty?" invite the patient's co-

operation and avoids the semblance of grilling. Direction of what appears to be significant facts in the history may be obtained by such comments as "I'm interested in this ——— that you mention." Then listen attentively, sympathetically and uncritically; the patient ultimately will display his real conflicts in vivid, enlightening detail.

Further points in conducting a satisfactory psychiatric interview would be: don't argue, don't try to substitute your standards for his own, don't accept the responsibility of making major decisions for the patient, and don't allow the patient to unload his responsibilities onto you. Approach the neurotic patient rather with a manner that displays at least as much interest as your approach to his roentgenogram or electrocardiogram.

Give him the assurance that you want to help him, and encourage him to take the initiative with the realization that at least half the responsibility in the treatment is his.

Listen to him—attentively, sympathetically, noncritically, without ridicule or amusement. Remember that his problems and symptoms are not absurd to him.

Sift and interpret, isolating what, on the basis of your understanding of mental illness, are the basic etiologic factors and mechanisms. Then gradually guide the patient back to a more mature way of dealing with his problems. Show him the probable relationship between his symptoms and his maladjustments and lead him out of his neurotic escape toward reality.

Consider the patient as a whole personality. This may temper the treatment of his disease in such a way as to not just add years to life but

life to years. As one patient observed while struggling along on a particularly strict medical regime, "You don't really live longer—it just seems long."

In conclusion, let me say that there should be recognition, interpretation and treatment of the various personality disturbances that come to the attention of the general practitioner. There should be a better understanding of attitudes and facts in mental illness so that the general practitioner may gain a more wholesome understanding of life for his own sake as well as for those many patients with personality problems who come to him for aid. The general practitioner is intimate with the patient and the family of the patient; he constantly observes the family situations and the family usually turns to the family physician first for help. If the general practitioner would become interested, he is in a very excellent position to make a genuine and lasting contribution to the general mental health of the community.

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SOME RECENT ASPECTS OF CARDIAC AND JUXTA-CARDIAC SURGERY

(Continued from Page 346)

Case Report

TREATMENT OF BARBITURATE POISONING WITH METRAZOL

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Minneapolis, Minnesota

THE occurrence of poisoning from barbiturates is becoming increasingly common due to the greater use of these drugs and the greater ease with which patients find access to them, despite efforts to restrict their indiscriminate sale.

The following case of barbiturate poisoning is reported, not because of any new method of treatment, but because of the more persistent and successful use of metrazol which overcame the effects of the poisoning and resulted in a complete recovery of the patient. The case's history is as follows:

The patient, a white woman, aged thirty-four, was admitted to the Swedish Hospital on October 12, 1948, at 7:55 p.m. by ambulance. She was completely unconscious, both pupils were dilated, and there was poor muscle tonus. The blood pressure was 90/55, the pulse 80 and of good quality. On the basis of the history and of a previous occurrence of barbiturate poisoning, the present episode was immediately thought to be of the same character, perhaps due to sodium pentobarbital. It was impossible to determine whether the barbiturate alone had been taken, or a combination of barbiturate and amphetamine sulfate, which the patient was known to have used occasionally. It was equally impossible to learn what quantities of either or both of these drugs had been ingested.

During the first thirty minutes, 18 c.c. of metrazol were administered intravenously without any noticeable response. Five per cent glucose in saline solution was administered intravenously about half an hour after admission, and the inhalation of oxygen per BLB mask started. At various times the blood pressure dropped to 80/60 but was improved by the administration of 1 c.c. of adrenalin (1:1,000) solution intramuscularly. Following the initial dose of 18 c.c. of metrazol, doses of 3 to 5 c.c. of the same drug were given intravenously at frequent intervals so that at the end of the first twenty-four hours, 176 c.c. had been injected. During these twenty-four hours there had been only occasional, very slight responses indicated by changes in the pupillary reaction and occasional slight movements of the arms and legs while the metrazol injections were actually being given. At times the respirations became very shallow and the patient markedly cyanotic. Late in the day on October 13, the pulse rate had increased to 120 beats per minute, but the respirations remained at 18 to 20 per minute and were slightly deeper. During the evening of October 13, there seemed to be a great deal of mucus in the respiratory passages which was cleared by suction. At this time, penicillin therapy was begun and 50,000 units were administered intramuscularly every six hours. Supportive treatment was continued and about midnight on October 14 the patient began to respond during the time the suction apparatus was being used. The metrazol injections were continued at fairly frequent intervals during this entire period. About 2:30 a.m. on October 14, slight tremors and slight rigidity at the time of the administration of the metrazol became apparent. Perspiration during this time was profuse.

After the recurrence of the tremors and the rigidity, the administration of metrazol was decreased and finally discontinued. About 9:30 a.m. on October 14, the woman became very restless and thrashed about in her bed. Shortly after this, she became rigid, with arching of the back, together with marked twitching of the face, extreme restlessness, and very much increased cyanosis. About 3:00 in the afternoon of the same day, a definite small convulsion was observed. At this time 100 mg. of demerol were administered. Following this the twitching and rigidity became less, although the restlessness persisted all afternoon. During the night she became relatively quieter and the cyanosis also decreased. The temperature had now risen to 102.2°, but the pulse was stronger. There was an occasional attempt at coughing when mucus seemed to obstruct the respiratory passages. About 4:00 a.m. on October 15, the patient spoke a few words and asked the nurse who she was. Shortly thereafter she called for her husband and responded slowly but poorly to questions. She seemed extremely depressed and the eyes presented a staring appearance. During the night she talked in a confused and irrational manner, attempted to pick up imaginary objects from the bed, and watched her nurse very closely.

The following morning further improvement was noted, although the cyanosis still persisted. The temperature now was 101°, the pulse 96, and the blood pressure 120/70. The patient appeared somewhat lucid and answered briefly when spoken to, although she still was very much confused. During this day, she took small amounts of liquid nourishment, and the following morning, October 16, at her regular meal apparently with enjoyment. At this time she was much quieter, less confused and more co-operative, but later in the day the confusion again increased and there were auditory, visual and sensual hallucinations, and marked excitement when talking to her husband. On October 17, the woman was still confused, laughed and cried alternately, and did not sleep although she yawned a great deal. A number of times she tried to strike her nurse and attempted to get out of bed. On October 18, the improvement was quite marked, although the patient was still incoherent at intervals and apparently had occasional delusions and hallucinations. However, she was definitely quieter and much more co-operative than before. On this day she was transferred to a sanatorium where she remained six additional days. At the conclusion of this period she had apparently recovered completely from the effects of the barbiturate poisoning.

It is worthy of comment that from the time of the patient's admission into the hospital until the appearance of the convulsion, which occurred during administration of the metrazol, a total of 259 c.c. of this drug had been given over a period of less than three days.

We feel that this case again corroborates the conclusions drawn by Eckenhoff, Schmidt, Dripps, and Kety¹ that metrazol is a potent anaesthetic and that "the failure of the drug as an anaesthetic is too often associated

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

Rochester, Minnesota

(Continued from March issue)

Mary Elizabeth Bassett (Mrs. Charles W. Bray) was from July 19, 1895, to February 28, 1896, an intern at the Rochester State Hospital. She was the eighteenth appointee to the medical personnel.

Mary E. Bassett was born at Beaver Dam, Wisconsin, on November 16, 1863, the daughter of Robert Lees Bassett, a native of New Haven, Connecticut, a bookkeeper by profession, and Mary Elizabeth Stultz Bassett, a native of Beaver Dam, Wisconsin, who before her marriage was a schoolteacher.

After graduation from the high school at Hastings, Minnesota, as salutatorian, in June, 1882, Mary E. Bassett was a bookkeeper for seven years. In January, 1889, she matriculated at the University of Minnesota and in her four and a half years there she made a distinguished record. She was a member of Delta Gamma sorority and of Phi Beta Kappa; she received the degree of bachelor of science in 1893 and in June, 1895, was graduated *summa cum laude* with the degree of doctor of medicine. In December, 1895, by examination, she was licensed to practice in Minnesota.

On graduation from medical school Dr. Bassett applied for a hospital internship and, because she was a woman, received unqualified refusal in the hospitals of Minneapolis and St. Paul. She then came to Rochester to interview Dr. W. J. Mayo, in the hope of entering St. Mary's Hospital as an intern. Official internships had not yet been established at St. Mary's, but Dr. Mayo thought that she could obtain such a position at the state hospital and he helped her to do so. In her months in Rochester she did excellent work at the state hospital and made friends socially and professionally. On August 1, 1895, by unanimous vote, she became a member of the Southern Minnesota Medical Association. From Rochester she went as physician for six months to the Owatonna State School for Indigent and Dependent Children. From September, 1896, to March, 1899, she was assistant physician at the Minnesota Hospital for Insane at St. Peter.

Early in 1899 Dr. Bassett was married to Dr. Charles W. Bray (1868-1937), of Biwabik. Her husband was a graduate of the medical school of the University of Minnesota, in 1895, and for a time after graduation was associated in practice with Dr. F. H. Milligan, of Wabasha. The story of Dr. C. W. Bray's life as a citizen of Biwabik and of his work for thirty-eight years as head of the Biwabik hospital, which he established and owned, belongs to the history of medicine in St. Louis County. After her marriage Dr. Bassett Bray gave up active practice except that for several years she helped her husband with the hospital. In succeeding years, although her home and family were her primary interest, she was active in the Congregational Church, the American Red Cross, and community

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and county relief work. Beginning in 1937, she served as a member of the board of directors of the St. Louis County Health and Tuberculosis Association.

Dr. and Mrs. Charles W. Bray were the parents of five children, of whom one daughter, Rachel Lees Bray, died young. In 1945 there were living of the family group, Mrs. Bray, in Biwabik, and four children: Robert Bassett Bray, M.D., of Biwabik, head of the Biwabik Hospital; Elizabeth Bassett Bray, a high school teacher in Minneapolis; Philip Noyes Bray, M.D., gynecologist and obstetrician, of Duluth, during World War II a lieutenant commander in the United States Navy; and Kenneth Eben Bray, M.D., previous to 1941 in general practice at Park Rapids, during the war a major and flight surgeon in the United States Army Air Force.

Hiram C. Bear (1861-1931), member of a numerous, respected and long-established family of Olmsted County, practiced medicine from 1883 to 1890 in the village of Dover (then known as Dover Center) in the township of that name.

Henry Bear, grandfather of Hiram C. Bear, was one of the twelve children, several of whom settled in Olmsted County, of Samuel Bear and Mary Bricker Bear, natives of Pennsylvania and pioneer settlers of Ohio; Samuel Bear was an American soldier in the War of 1812. The parents of Mrs. Henry Bear were Adam and Catherine Bricker, both natives of New York and, like the Bears, pioneers in Ohio. William Bear, son of Henry Bear and father of Hiram C. Bear, was born in Seneca County, Ohio, on January 15, 1837, and came to Eyota Township, Olmsted County, Minnesota, in 1854. He was married in 1859 to Henrietta Carl, a native of Logan County, Ohio, and a daughter of Hiram Carl and Susanna Bodkin Carl, both of whom were born in Ohio; Mr. and Mrs. Carl came to Olmsted County in 1877. Mr. and Mrs. William Bear had five children, named here in the order of their birth: William; Hiram C.; George, who died in infancy; John Buty; and Alice May (Mrs. Charles W. Hughes).

Hiram C. Bear was born in 1861 in Eyota Township, and in that vicinity and in the village of Eyota obtained his early schooling. He studied medicine at the Hahnemann Medical College of Chicago, from which he was graduated in April, 1883; his Minnesota license No. 886 (H), was issued on April 22, 1884.

Liked and respected, Dr. Bear was welcomed to Dover, the scene of his first medical practice. He was married to Minnie Smith, of Plainview, Wabasha County, on January 1, 1890. In the autumn of 1890 Dr. and Mrs. Bear removed to Caldwell, Kansas. On their return to Minnesota, early in 1896, they settled in St. Charles, Winona County, and there spent the remainder of their lives. Dr. Bear had a broad and successful practice in Winona and Olmsted Counties. He died in St. Charles on June 18, 1931. Mrs. Bear survived him eleven years, and died in St. Charles on June 15, 1942.

Rose Anne Bebb, daughter of William G. Bebb and Margaret Price Bebb, was born at Portage, Wisconsin, and after early school years was educated at the University of Minnesota, receiving the degree of bachelor of literature in 1891 and the degree of doctor of medicine, *cum laude*, in 1897. On graduation in medicine she joined the staff of the Rochester State Hospital, the twenty-first professional appointee. On the resignation of Dr. Sara V. Linton Phelps, in February, 1898, Dr. Bebb became assistant physician and gynecologist, a position which she held until she resigned on March 3, 1900, to remove to New York, New York.

On arrival in New York she was invited to join the New York City Department of Health. Interested in preventive medicine, she accepted the offer and devoted

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some years to public health work in association with that department and other city health departments and with the United States Public Health Service. She also did research and teaching in this field at New York University. Later she resumed work in psychiatry and neurology, after two years of postgraduate study in these subjects in Europe. Much of the time subsequently she acted as consultant to private organizations and had her own institution for preventive treatment for mental disorders, with her office for years at 20 Fifth Avenue, New York. Since January, 1929, she has been associated with the New York City Department of Hospitals as a psychiatrist (1946).

Dr. Bebb has licenses to practice in three states, Minnesota, New York and Washington. While in Rochester, Minnesota, she was a member of the Olmsted County Medical Society and the Southern Minnesota Medical Association. She is a fellow of the New York Academy of Medicine (New York City), a member of New York state and county medical societies, the New York Neurological Society and the American Medical Association. She is a Presbyterian, a Republican, and a member of Alpha Phi sorority.

Dr. Bebb has recalled with pleasure her experience in the Rochester State Hospital, the interesting work and congenial associations, and has expressed gratitude to Dr. Arthur F. Kilbourne, superintendent, for opportunity and encouragement, and to Dr. William J. Mayo, who was a surgeon to the hospital at that time, for personal help and inspiration.

Edmund Beckwith, homeopathic physician and surgeon, came from Cleveland, Ohio, to Rochester, Minnesota, in January, 1868, as successor to Dr. Isaac M. Westfall, a pioneer homeopathic practitioner who was retiring from practice to devote himself to farming and dairying near Rochester.

Eckman, in 1941, in his essay, *Homeopathic and Eclectic Medicine in Minnesota*, reported that Edmund Beckwith was born at Nelson (in Portage County), Ohio, on October 14, 1836, and was graduated from the old Homeopathic Hospital College of Cleveland in 1865, and he presented the interesting speculation that Dr. Beckwith may have come from a distinguished background in homeopathic circles in Ohio: Dr. Seth R. Beckwith (1832-1905), a native of Ohio, was professor of surgery, before 1870, at the homeopathic college from which Edmund Beckwith was graduated, was one of the founders of the Pulte Medical College of Cincinnati, and was a practitioner who attracted eminent patients, among them James A. Garfield. Dr. David H. Beckwith (1825-1909) was professor of sanitary science at the same Homeopathic Hospital College, president of the Ohio state and the Cleveland city boards of health, and vice president of the Cleveland Medical Library Association.

Whatever his forebears, Edmund Beckwith practiced medicine in Rochester from January, 1868, into the autumn of 1872, and won liking and respect as physician and citizen. When he opened his office in the Union Block, on Broadway and Third Streets, his professional card stated that he made a specialty of all chronic diseases of the throat, lungs and liver, dyspepsia and the diseases of women and children. His home was at the corner of Franklin and College Streets (now Second Avenue, S. W. and Fourth Street, S. W.).

Favorable recollections of Dr. Beckwith by one of Rochester's venerable citizens have been confirmed by comments printed in the city newspapers of that day, as in the *Federal Union* of March 27, 1869:

I desire, through this public medium, to convey my thanks to those friends who came forward with their kind proffers of assistance during the late affliction that befell my household. And also to tender my special thanks to Dr. Beckwith. I have now been the head of a

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household during a period exceeding 38 years and the truth compels me to say that Dr. Beckwith is the first physician whom it has been my fortune to employ, during that entire time, who has offered essential relief to the afflicted members of my family.

J. M. Hall

And the *Rochester Post*, on March 25, 1871, bore this testimony: "Olmsted County is Homeopathic, nowadays. Dr. Beckwith, of that faith, was appointed county physician at the last session of the Board of Commissioners."

Dr. Beckwith allied himself with the Minnesota State Homeopathic Institute (founded in 1867) soon after he came to Rochester; at a convention held in St. Paul in June, 1871, he was appointed a member of two committees, one on the diseases of children and the other on contagious diseases. The next year, in June, at the annual meeting in St. Paul, he was appointed a member of the board of censors. In the meantime, in October, 1871, the Southern Minnesota Homeopathic Medical Society had been founded at Owatonna by a small group of practitioners, among whom were Dr. Beckwith and Dr. Westfall (the latter nominally retired from practice but active in organizational work). Dr. Westfall was elected president and Dr. Beckwith was made one of the board of censors and also designated to make a report on practices, at the next annual meeting, to be held in May, 1872, in Rochester.

In August, 1872, it was announced that Dr. Beckwith was leaving Rochester in the fall and going east; he had disposed of his business to Dr. W. A. Allen, of Plainview. In February, 1876, then in Muncie, Indiana, Dr. Beckwith was advertising in the Rochester papers that his residence in this city was for sale; it was not until October 8, 1886, however, that the *Post* stated, "Mrs. Dr. Beckwith has sold her former residence at the corner of College and Franklin Streets." In the autumn of 1878 Dr. Beckwith left Muncie for Faribault, Minnesota, having been appointed successor to Dr. Nichols in the "Deaf and Dumb and Blind Institute" in that city: "Dr. Beckwith is a worthy citizen and a skillful physician and the appointment is a good one." He was still in Faribault in late October, 1879.

Eckman stated that Dr. Beckwith removed to California, where he died, in Petaluma, on September 21, 1915, regarded as a pioneer practitioner of the town. The fact that Dr. Beckwith's name does not appear in the first official register of physicians of Minnesota, 1883-1890, is presumptive evidence that this physician left Minnesota before the medical practice act of 1883 went into effect.

M. D. Bedal, a graduate of the Chicago Medical College, opened an office in Leland's Block, on Broadway, Rochester, Minnesota, in June, 1874, having just completed three years in Cincinnati, Ohio, which he had spent attending lectures and practicing in the hospitals. The *Rochester Record and Union* stated, in the usual manner of early newspapers, that he was a young physician of superior attainments and excellent natural abilities. Evidence has not appeared that he remained long in Rochester. It is probable, judging from a note observed about early physicians of Mower County, that within a few months he proceeded to Brownsdale, and that in Brownsdale he omitted mention of his stay in Rochester, for it was said that he had come to Mower County from Cincinnati. From Brownsdale, in the spring of 1876, he removed to Tekamah, Burt County, Nebraska.

This Dr. Bedal should not be confused with Dr. Sylvester L. Bedal, who although never a practitioner in Olmsted County, it is believed, spent his boyhood in the county. The son of a pioneer settler near Eyota, Sylvester L. Bedal read medicine with Drs. E. C. and E. W. Cross of Rochester in the late sixties or early seventies. The only mention noted of him as a physician appeared in a local news item in

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1874: Then an assistant surgeon in the United States Army, stationed in New York, he was visiting in Eyota.

J. S. Bell was a homeopathic physician and surgeon who came to Rochester, Minnesota, in September, 1868, from Naperville, Illinois, and opened an office over Andrews' store on Broadway; in January, 1870, he was changing his office to an upstairs room in Graham's Block. In the summer of 1871 it was stated that he had removed to the pretty town of Litchfield on the St. Paul and Pacific Railroad. Thereafter he made an occasional visit to Rochester.

That he was in good standing among organized homeopaths is indicated by the inclusion of information about him, albeit incorrectly, among homeopaths of Minnesota in the *History of Homeopathy* (1880) as follows: "Dr. J. S. Bell went to Rochester in 1869; went to Litchfield in 1873; left Litchfield in 1873." His departure from Litchfield is verified by an item in the *Rochester Post* of December 27, 1873, to the effect that Dr. J. S. Bell, formerly of Rochester, more recently of Litchfield, had been in Rochester during the week: "The doctor is seeking a more satisfactory and congenial climate."

Seth Scott Bishop, son of Lyman Bishop and Maria Probert Bishop, was born on February 7, 1852, at Fond du Lac, Wisconsin. He was graduated from the Pooler Institute, at Fond du Lac, and for three years studied at Beloit College. In 1869 he began the study of medicine with Dr. S. S. Bowers of his native city, thereafter attended three courses of lectures at the medical department of the University of the City of New York, and next enrolled at the Chicago Medical College, from which he was graduated in 1876. After practicing medicine in Fond du Lac for about a year, he decided to settle in Rochester, Minnesota, and in February, 1878, made the trip with horse and buggy, accompanied by his wife.

In Rochester Dr. Bishop took over the medical and surgical practice of Dr. St. V. Martinitz, an eclectic physician who was going to Austria to study, used Dr. Martinitz' office and lived near by. Both Dr. and Mrs. Bishop were talented musicians and entertainers; soon after their arrival Mrs. Bishop gave the first of several successful concerts, and in the same season she and her husband gave a demonstration at Heaney's Hall, exposing and explaining the tricks of spiritualistic mediums.

Established physicians of Rochester accepted Dr. Bishop as a colleague, and in 1878 he became a member of the Minnesota State Medical Society. When Dr. J. E. Bowers, superintendent of the hospital for insane, was away on a vacation, Dr. Bishop carried on his work for him. On occasion of consultation Dr. W. W. Mayo, of Rochester, and Dr. Franklin Staples, of Winona, endorsed Dr. Bishop's care of a patient.

In November, 1879, Dr. Bishop removed to Chicago, where as a specialist in diseases of the ear, nose and throat he won success and honor as surgeon and inventor of surgical instruments and therapeutic aids in that field, as writer, and as member of medical organizations (as recorded in *Physicians and Surgeons of America*, 1896).

Hamilton Philo Boardman, born in the late eighteen fifties, was the fourth child and third son of Philo Boardman and Jane Hackett Boardman, respected early settlers in Cascade Township, Olmsted County, Minnesota. His brothers were Elkanah W. Boardman and Marcus J. Boardman, his sister, Margaret Boardman (Mrs. William) Heaney.

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Philo Boardman was born in Cattaraugus County, New York, on January 1, 1821, was educated in the public schools of Tioga County, and became a farmer and stock raiser. On May 5, 1855, he started for Minnesota with his wife and children; the family made the trip by ox team and wagon and arrived in Cascade Township on July 4, just in time to join the pioneer residents in celebration of Independence Day. Mr. Boardman took up a government claim in Section 15, a holding that he increased to 840 acres. After the death of his wife he remarried and, in 1879, removed to Texas, where he went into the cattle business. On leaving Olmsted County, he divided his land in Boardman Valley between his two elder sons with the understanding, it is said, that they would educate their brother Hamilton as a physician.

Hamilton P. Boardman acquired his preliminary education in the district and village schools and his first medical instruction from Dr. W. W. Mayo, of Rochester, with whom he studied in the late seventies. His formal medical training he obtained at Bellevue Hospital Medical College, in New York, from which he was graduated on March 1, 1880. In the following June the accidental death by drowning of Dr. John N. Farrand, of Oronoco, created a vacancy for a practitioner, and Dr. Boardman established himself in the village, with an office in the house of J. L. Hanson, and began his initial practice. To Oronoco at the same time came William A. Vincent, an undergraduate medical student employed at the state hospital in Rochester, purposing to hold a place in practice for his friend Edgar A. Holmes, of Eyota, Minnesota, who was about to take his degree at the Chicago Medical College. The *Oronoco Journal* announced on July 23, 1880, under the caption "And Still They Come," that all danger of death from lack of medical attendance was at an end, and called attention to the professional cards of the three young physicians.

At Oronoco it has been said, "Dr. Boardman was a very good doctor, able and fearless. He was very young, and a local boy. Dr. Holmes, older and an excellent physician, was here also and there were many well-established physicians in communities near. . . . Perhaps Dr. Boardman had more of the pioneer spirit than others—anyway, he left and went further west." His first remove, in October, 1881, was to Fisher's Landing, on Red Lake River, in Polk County, Minnesota, where he remained five years. On November 24, 1883, he qualified under the new Minnesota "Diploma Law" and received state license No. 401 (R); three days earlier he had registered in Dakota Territory. From Fisher's Landing he went, late in 1886, to Oakes, Dickey County, on the southern border of North Dakota, and there he found a widening field. After fourteen years of successful general practice he established his own hospital in Oakes, in 1901, enlarged it the following year and again in 1905.

Dr. Boardman was married in 1883 to Althea McMaster, a schoolteacher and one of the six children of Mr. and Mrs. John McMaster, pioneer settlers of Oronoco Township, Olmsted County. John McMaster was the son of William and Margery Cunningham McMaster, natives respectively of Westmoreland County and Fayette County, Pennsylvania; he came to Iowa in 1853 and to Minnesota in early 1856; his wife was Lawrence, the daughter of Andrew and Mary Lees-Hollister, natives of Scotland. Althea McMaster Boardman died in Oakes on March 24, 1903, leaving a son, Lees McMaster Boardman, about fifteen years of age. Dr. Boardman's second marriage took place in December, 1904, as noted by the *Northwestern Lancet* of January 15, 1905: "Dr. F. W. Maercklin, of Ashley, North Dakota, and Dr. H. P. Board-

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man, of Oakes, North Dakota, were parties to a double wedding last month. The brides were the Misses Anna Mabel and Martha M. Irwin, of Ellendale, in the same state."

Early in 1907, Dr. Boardman retired from practice and removed to California, first to Ocean Park and later to Santa Monica, where he died in 1925, survived by his wife and his son.

Wendell G. Bothwell (1844-1926), who has been described as a horse and buggy doctor of the old school, in the early spring of 1871 arrived with his wife and two infant children in the picturesque village of High Forest, Olmsted County. He found established there three physicians: Dr. Alexander Grant, inactive professionally; Dr. Stewart V. Groesbeck, popular, definitely a man of the people; and Dr. David S. Fairchild, well trained, very young and dignified and of highest ethical standing. The village having begun its long decline, in 1872, Dr. Groesbeck removed to Marshall, Minnesota, and Dr. Fairchild to Ames, Iowa.

Wendell G. Bothwell was born in Toronto, Canada, on November 10, 1844, the son of John and Adeline Maria Bothwell, natives of Scotland, who had come from Glasgow to Toronto. Around 1860 the family came west to Fond du Lac, Wisconsin, and there the boy became a baker. On the outbreak of the Civil War he joined the Union Army, with which he served until the close of hostilities. Within the next six years he obtained his medical education, and it is said that he read medicine in Rochester with Dr. Hector Galloway, who is recalled as one of the soundest of the pioneer physicians of Olmsted County. About 1868 he was married to Juliette Thomas, daughter of N. W. Thomas, a pioneer settler of Rochester; the second child of the marriage, Gertrude Bothwell, was born in Rochester in February, 1871. Although it has appeared in a medical directory that Dr. Bothwell was graduated from the Chicago Medical College in 1877, it is probable, judging from his story after he left High Forest, that he took his degree soon after studying with Dr. Galloway and that he was newly graduated when, in March, 1871, he began practice in High Forest. A comment that he was in Pine Island and Goodhue some time in the early seventies has not been confirmed.

In High Forest and Rochester Dr. Bothwell is remembered as a pillar of the Methodist Church, a lively, jolly, friendly man, "quite a politician and something of a joiner." He was a member of many fraternal organizations, among them the Masonic Lodge, in which he was one of the Knights Templar, and the Independent order of Odd Fellows, and was medical examiner for various protective insurance associations. Although his practice in village and community kept him busy, it was not remunerative. A letter that Mrs. Bothwell wrote to her sister, Mrs. William Eaton, of Rochester, in the late spring of 1871, states: "The doctor has been practicing here three months and so far we have had fifty cents in money." Produce was almost too plentiful, especially when a ham weighing thirty-five pounds was brought in to apply on the doctor's bill, and ham was selling at ten cents a pound.

Juliette Thomas Bothwell died in High Forest in November, 1874, at the age of twenty-seven years, and shortly after her death, Dr. Bothwell with the two children, George, aged five years, and Gertrude, aged three years, removed to Fonda, Iowa. In Fonda, in October, 1880, he was married to Miss Ida Dodge of that place. Of this marriage there were two children, a son, Clyde Dee, born in 1882, and a daughter Helen, born in 1895. From Fonda

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Dr. Bothwell removed with family in 1890 to Fairbank, Iowa, where he enjoyed many prosperous years. Gradually he discontinued medical practice and about 1916 left Fairbank for Des Moines, where for the last ten years of his life he was employed in the State House.

When Wendell G. Bothwell died in 1926, his funeral rites were conducted under the direction of the local chapter of the Grand Army of the Republic, of which he had been an honored member, and it is said that nearly all of the old soldiers in Iowa were present to pay him tribute. He was survived by his wife and by one daughter. Clyde Dee Bothwell, the son of the second marriage, was a graduate, in 1907, of the St. Louis (Missouri) College of Physicians and Surgeons and he practiced in Olwein, Iowa, from 1907 until his death on October 22, 1925. In 1945 there were living of Dr. W. G. Bothwell's family: his widow, Ida Dodge Bothwell, aged eighty-six years, in Des Moines; his daughter, Gertrude Bothwell (Mrs. J. T.) Dietz, at Fairbank, Iowa; and three grandchildren, George E. Dietz and Lewis Wendell Dietz, both in the service during World War II, and Mrs. J. A. (Dietz) Ohl, of Olwein.

Jacob Eton Bowers (1841-1922), for fifty-four years a distinguished member of Minnesota's medical profession in the field of nervous and mental diseases, was from January, 1879, to early October, 1889, a resident of Rochester, Olmsted County, as superintendent and chief physician of the Second Minnesota Hospital for Insane.

Jacob E. Bowers was born in 1841 in Berlin, Waterloo County, Province of Ontario, Canada, the son of parents who were natives of the state of Pennsylvania. He obtained his preliminary education in the schools of his birthplace and his academic training at the University of Toronto, from which he received the degree of bachelor of arts in 1864 and that of master of arts in 1865. In the next year he taught French and German at the London (Ontario) Collegiate Institute, and at the same time read medicine under a preceptor. Thereafter he spent one year at the Toronto College of Medicine and the next two years at the University of Michigan, from which he was graduated early in 1868 with the degree of doctor of medicine.

Soon after graduation Dr. Bowers came as assistant physician to the Minnesota Hospital for Insane at St. Peter (established in 1866) on the invitation of Dr. Samuel E. Schantz, the first superintendent of the institution. When Dr. Schantz died suddenly in August, 1868, Dr. Bowers was appointed acting superintendent and so well did he manage the hospital and prepare the major part of the second annual report, for Dr. Cyrus K. Bartlett, the new superintendent who came in December, 1868, that the board of trustees allowed him full salary of superintendent. After he was relieved by Dr. Bartlett, Dr. Bowers spent several months in the East in postgraduate work. In 1876 and 1877 he traveled for eight months in Europe studying nervous and mental diseases and observing hospitals and asylums for the care of the insane. In June, 1877, he returned to his position of first assistant at St. Peter, where he remained until he came to Rochester.

Shortly after enactment of the law of March 7, 1878, which placed at Rochester the Second Minnesota Hospital for Insane (a brief history of the hospital appeared earlier in this article) and transferred to it the land and unfinished buildings of the nullified Inebriate Hospital, Dr. Bowers made his first visit to Rochester, as official representative of the board of trustees, to inspect the equipment and devise plans for adapting it to the care of

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the insane. The hospital opened on January 1, 1879, with Dr. Bowers as superintendent and sole physician.

To Dr. Bowers' ability as physician and executive and to his character as a humane and conscientious man were due the early growth and development of the Second Hospital for Insane into one of the finest institutions of its kind and time in the country. Dr. Bowers planned and began the beautiful landscaping of the hospital grounds, primarily for the benefit of the patients, and instituted as therapeutic measures entertainment, diversified activity and occupational therapy. His official annual reports to the board of trustees were not mere statistical compilations. Nearly sixty years after their writing they convey much of human and scientific interest.

The event that led to Dr. Bowers' resignation as superintendent of the hospital occurred on April 1, 1889, when a criminally insane Negro patient died, subsequent to a struggle with nonprofessional attendants. (At that time, for more than 850 patients, there had been allotted to the hospital only two assistant physicians.) There ensued criticism of Dr. Bowers and an exhaustive investigation that is a matter of detailed record in official documents. Newspapers of St. Paul and Minneapolis publicized the affair as a *cause célèbre*. Dr. Bowers was exonerated fully and his management of the hospital endorsed and sustained. When he resigned, he was replaced by Dr. Arthur F. Kilbourne, formerly assistant physician to the state hospital at St. Peter.

Before leaving Rochester to enter private practice as a specialist in nervous and mental diseases, Dr. Bowers was honored by the citizens and the medical profession of the city, through the Olmsted County Society, of which he was then president. In this period also the Minnesota State Medical Society proposed a resolution of sympathy for and confidence in Dr. Bowers.

Dr. Bowers was a constructive exponent of organized medicine in various representative groups. In the Minnesota State Medical Society, of which he became a member on February 1, 1870, he served in many capacities, as corresponding secretary, member and chairman of committees, essayist, and delegate to the American Medical Association; in 1889 he was cited on the roll of honor of membership.

Jacob Eton Bowers was married on May 27, 1879, to Kate Walbank, daughter of Dr. and Mrs. S. S. Walbank, of Duluth. When they removed from Rochester, Dr. and Mrs. Bowers, after a few months in St. Paul, made their permanent home in Duluth. Sixteen years a specialist and more than thirty years an honored resident of the city, Dr. Bowers died in Duluth, at St. Luke's Hospital, on February 23, 1922, at the age of eighty-one years.

David A. S. Britts, a physician of the old school, typical of many of his time, first practiced medicine at Marion, Marion Township, Olmsted County, in the early seventies.

Born on March 1, 1844, in Montgomery County, Indiana, David A. S. Britts when a young boy removed with his parents to Wisconsin; in 1862 the family came to Dodge County, Minnesota. Soon afterward, on November 8, 1862, David Britts enlisted from Dodge County in Company M of the First Regiment of Mounted Rangers and with it served in the war with the Sioux Indians until December 7, 1863. After a period of detached service in a military hospital he re-enlisted on March 6, 1865, in Company K of the Second Regiment of Minnesota Cavalry, under General Henry H. Sibley, and again served in the Indian wars until he was mustered out on March 1, 1866. On his way home from Dakota in the winter he was injured so seriously by freez-

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ing that the government awarded him a pension. After his discharge from the army he attended school in Wasioja, Dodge County, at the famous old seminary, then the Groveland Seminary (shortly afterward, the Wesleyan Methodist Seminary), and thereafter obtained his medical training at the Chicago Medical College, probably subsequent to reading medicine with one of the well-known physicians of Dodge County.

In the summer of 1875, if not earlier, Dr. Britts began his medical practice at Marion, where he was successful, if newspaper comments are an indication. According to the *Rochester Post* of April 15, 1875, Dr. Britts announced to friends in Mantorville, Dodge County, that he had been appointed assistant room surgeon in one of the hospitals in Chicago and that he would begin the work about June 1; the next week it was stated that he would remain in Marion. Change was in his mind, for in July, 1876, he removed to Brownsdale, Mower County, where he remained until some time in 1880, with the exception of a few months in 1879 which he spent in Lanesboro, Fillmore County, as assistant surgeon at the "Lanesboro Sanitarium" of Dr. David Frank Powell (White Beaver).

Two different statements have been observed as to Mrs. Britts' maiden name: in the *Rochester Post* of November 28, 1879, there was announced the marriage on November 23 of Dr. D. A. Britts to Alice M. Stevens; in the *History of Mower County*, of 1844, the name appears as "Ella Stevens Hamlin."

From Brownsdale Dr. Britts went in 1880 to Clearwater, in Wright County. Under the Act of 1887 he received a state exemption certificate. Prior to 1904 he settled in Minneapolis, at 39 Washington Avenue South, and continuously from that time he was listed in directories as practicing medicine in that city; his name appeared in the first edition of the directory of the American Medical Association, in 1906, and was included for the last time in the edition of 1914.

William P. Broderick (1859-1899), an assistant physician, twenty-second appointee on the staff of the Second Minnesota Hospital for Insane, to succeed Dr. H. H. Herzog, resigned, began his work in Rochester on March 25, 1899. He died suddenly in his quarters on April 8, 1899, from Bright's disease.

William P. Broderick was born on June 15, 1859, at Havana, Schuyler County, New York. In 1884 he was graduated from the Bellevue Hospital Medical College; the next seven years he was with one of the Manhattan state state hospitals on Ward's Island; the following eight years he was on the staff of the Northern Hospital for the Insane at Winnebago, Wisconsin, and from that institution came to Rochester. His wife had died in 1894, leaving a little daughter Lucretia, two years old. Dr. Broderick was survived by the child, a sister, Mrs. T. R. Palmer, of St. Paul, and a brother, George C. Broderick, of Norfolk, Virginia.

(To be continued in May issue)

President's Letter

The AMA in 1950

The medical profession has outgrown many of its precedents. Chief among the discarded patterns is the familiar concept of the Family Doctor as a kindly, horse-and-buggy-propelled individual, whose only concern was the patients of his own community.

Perhaps I should not say that we have discarded this concept . . . for the ideals of service held by the horse-and-buggy doctor are an integral part of medical practice. But the medical profession has moved on to a wider perimeter of interest and to heavier and more varied responsibilities.

The history of the American Medical Association demonstrates this widening field of service. It has become increasingly active, over a period of years, in protecting the public against fraudulent and harmful medical practices, drugs, medicines and appliances. It has demonstrated a deep concern over the cost and availability of medical care; hence experimentation with the now accepted plans for voluntary health insurance and numerous studies into the equitable distribution of physicians. Ever-occupied with the necessity for higher quality medical care, the AMA has been instrumental in abolishing medical schools of inferior grade and tightening requirements for the remaining schools, until today there are *only* Class A medical schools. The American physician is the best physician in the world, with the most intensive training and education and the highest ethical standards.

Facts for Americans

In 1949 and 1950, the AMA has gone into the problems of medicine even more comprehensively. Committees have been sent abroad to study medical care plans; commissions have been organized, with AMA financing, to explore possible solutions to such problems as chronic and catastrophic illness. And to meet the challenge of knowledge-hungry, security-tempted Americans, the National Education Campaign continues. The Campaign, which gained sufficient momentum to block compulsory health legislation in the 81st Congress, will carry on the logical conclusions of the program—the possession, by every citizen, of the facts about medical care and costs, the easy transfer of control from medicine to all economy, the comparison of health standards under government medicine and private medicine.

Program Grows

To support its growing program of public service activities, the AMA has established twenty-five dollar dues. These dues have been set in a democratic fashion: no physician will be deprived of his county or state medical association membership through failure to pay AMA dues; affiliate members and those for whom dues-paying would constitute a hardship are exempted from payment.

The dues are far from excessive, particularly in view of their translatable value in human health, freedom and happiness. I feel sure that the physicians of Minnesota, in keeping with the traditions of medicine here, will maintain membership in the AMA, indicating by that membership that they support, actively and personally, the broad, humanitarian program of the American Medical Association.



President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor*; GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

AMA DUES FOR 1950

ESTABLISHMENT of dues for members of the American Medical Association has come as a surprise to many. Actually, the surprising fact is that the AMA has not required dues payment earlier in its 103-year history.

Physicians have been able to enjoy the privileges of American Medical Association membership without cost mainly because of the organization's multi-million-dollar publishing business. This enterprise has balanced the deficits and profits of at least ten medical specialty journals, the AMA Directory and the Cumulative Index Medicus, in addition to financing numerous costly public service activities, typified by Council on Pharmacy and Chemistry.

Doctor and public alike owe a great deal to the American Medical Association for its stewardship of medical standards and its protective attitude toward the nation's health.

As the economic, social and political life of America has become more complex, so have the duties and responsibilities of the medical practitioner and the organization that represents him to the public. The North Central area has contributed to the pressure for an expanded AMA program. More than a decade ago, the North Central Conference felt that the American Medical Association should interest itself more deeply in governmental affairs. Accordingly, the Washington office and the Council on Medical Service were established and the scope of both offices has widened during the years.

Currently, the American Medical Association is sending committees abroad to study medical education, hospitals and medical care plans, has established commissions for the consideration of such corrosive problems as chronic and catastrophic illness, and is conducting a campaign of national education to acquaint the American public with the facts about private and government medical practice.

If the American Medical Association is to continue to guard the public's health and, obliquely, its freedom, additional financing is necessary.

American Medical Association dues are payable now. Checks should be made out to the AMA and returned to the secretary of the county medical society, who will relay the dues to the state association office and from there they will go to AMA headquarters.

Payment of the dues is voluntary and does not affect membership in county and state associations, but like other obligations of democratic organizations, payment of these dues is the responsibility of every physician who is interested in maintaining medical standards and furthering the health goals of the nation.

THE STATUS OF VITAMIN CONSUMPTION

IN 1947, \$188,000,000 was spent for vitamins in this country. The manufacture and sale of vitamins has thus become one of the great national industries.

The question has been raised repeatedly whether the millions spent yearly for vitamins have been wisely spent. Other questions which naturally have arisen in regard to the vitamins are: Is the average American diet actually deficient in vitamins and, if so, in which vitamins is it deficient? How can one determine the need of supplemental vitamins in the absence of clinical symptoms? If no avitaminosis exists, does the administration of additional vitamins serve any useful purpose and can it do harm?

An exhaustive review of the whole subject of vitamin supplementation in Health and Disease by Perry J. Culver appeared in the last three issues of the *New England Journal of Medicine* published in 1949. He answers the questions submitted above to his own satisfaction and with little room for criticism.

While admitting, of course, that there is such a condition as avitaminosis as for instance in chronic alcoholism, debilitating diseases associated with diarrhea (we assume) and in infants whose orange juice as well as milk is boiled, Culver questions the need for any wide-

spread consumption of purified vitamin supplements by the public at large. He believes the average diet in America is sufficient to prevent clinical and subclinical vitamin deficiency and that there is very little vitamin deficiency in our country today. What there was ten years ago has been gradually disappearing and began to disappear before the practice of enriching flour began. He cannot explain this phenomenon and apparently does not believe the expenditure of millions of dollars for supplemental vitamins is responsible. He believes that many estimates of the incidence of vitamin deficiency in the United States have been based on the presence of supposed signs of vitamin deficiency which have been lately proven to be non-specific in character. He also believes that many claims that the American diet is inadequate are based on the consideration of the dietary allowance recommended by the National Research Council as minimal instead of optimal.

The author claims that very little evidence has been offered that supplemental vitamins added to the average diet do anything in the way of increasing fitness, increasing tolerance to heat or cold, improving well-being, reducing absenteeism from work, increasing appetite or ability to work.

In the last four years between three and four thousand medical articles on the subject of vitamins have appeared. Innumerable cases have been reported in which large doses of certain vitamins have cured a great variety of abnormal conditions. Oftentimes the therapeutic claims have not been substantiated by other investigators. Occasionally quackery has made its appearance, as in the case of the enthusiasm for Vitamin E in the treatment of heart disease. Shute, of London, Ontario, has been claiming improvement the last three years in 80 per cent of cases of angina pectoris, rheumatic heart disease, and hypertensive heart disease, from the use of Vitamin E; results which others have not been able to duplicate. Just recently the Council on Pharmacy and Chemistry (J.A.M.A., Feb. 18, 1950) has indicated the fraudulent nature of Shute's claims. Doubtless many of the claims for the therapeutic value of other vitamins will not stand the test of time and experience.

In the use of vitamins, the pendulum has

swung far, and doubtless more are used than are warranted. Enormous doses can be harmful, but this probably seldom occurs. The pendulum will swing back and may have started its back-swing already. Let us not allow it to swing so far that we withhold the use of vitamins when they are indicated. An infant off the breast still needs supplemental vitamins. They are indicated when for any reason a diet may be lacking in vitamin content or absorption of vitamin is deficient. The therapeutic limitations of the newer vitamins—folic acid, B₁₂ and rutin—is rapidly being determined.

The reality of sub-clinical avitaminosis and the impossibility of determining its presence frequently lead to the prescribing of a mixed vitamin pill, with a large question mark as to its need in the mind of the prescribing physician. The psychological value of such a prescription, however, is often very real, and vitamins have replaced Elixir I.Q. and S. Moderation in all things applies to the dispensing and consumption of vitamins. That we—both the public and the profession—have gone to inexcusable extremes in the matter of vitamins is certain.

ALAS, A LACK!

BESIDES the dearth of the teaching of the humanities in premedical education, there is practically a total loss of the aura of medical history in the medical school itself.

What is the result?

The junior professors and Fellows have lost sight of the humanistic values inherent in the past. Their task is piled up with the factual load of biochemical and mechanical aids to diagnosis; the spectre of research; the pressure from the Juggernaut press; and the "Boards." In other words, they have no time. They know nothing of the continuity of growth, its significance and its pedagogical value.

Lecturing on medical history to undergraduates may be a waste of time. In the selection of teachers, however, one of the requisites should be at least one essay by the candidate on some great physician of the past. A club or seminar for the study of history in this group is just as essential to the preparation for teach-

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Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

MORE AND MORE SECURITY MEANS "PIGGY-BACK" RIDE

Frank Dickinson, head of the AMA Bureau of Medical Economic Research, in a factual and convincing speech at the University of Wisconsin recently, scored the pending dangers of more and more government security. Citing simple facts and using them without distortion, Dickinson made a sensible argument against the security-extendors, asking the vital question, "Do we want to ride piggy-back to the grave on the shoulders of those who are now children?"

Explaining his contention that, with more security, those nearest the grave would depend on those nearest the cradle, he said:

"... health progress is at once the measure and the core of social progress. Length of life is a comprehensive, rough measure of social progress—a quarter of a century in the heyday of the Roman Empire (for upper class Romans), a third of a century in Germany in 1700; life expectancy at birth was almost a half century in 1900 and almost three score years and ten in 1950 in the United States. Ruskin said it so beautifully, delightfully, in one sentence: 'There is no wealth but life.'

"I would impress upon you the simple fact that, during the first half of the twentieth century, we have not only enjoyed man's greatest half century but we have also endured a social revolution—a social revolution more important than the fall of the Roman Empire, the Renaissance, the French Revolution, or the Industrial Revolution. This *latest social revolution* lies in the fact that the distance from the cradle to the grave is much longer for the average man. In 1900 there was no sentiment for 'cradle to the grave' schemes. Most of us living in 1900 were close to the cradle. Most of the people living today are far from their cradle days. This social revolution is the basis for the sentiment for 'cradle to the grave' schemes; as Sir William Beveridge called them; other people use different names. We are faced primarily with medical and health progress in half a century which have come so fast that we have difficulty digesting them into our social institutions and into our way of life. That, I submit, is the general problem. It breaks down into many specific problems."

He was talking about what sociologists call the "cultural lag"—the principle that, with rapid advancement of science and medicine, society is unable to absorb such developments into its social thinking with similar speed, resulting in an apparently backward social conscience. In reality, it is not backward social conscience, but scientific and medical advancement.

Cites Fifty Years of Health Progress

Health progress statistics since 1900 show with remarkable clarity how rapid the improvement has been. Itemization of fifty years of progress showed that:

"One thousand babies born in 1900 were destined to live 49,000 years.

One thousand babies born in 1949 were destined to live 68,000 years.

Since 1900 the entire population of the United States has doubled. (75 to 150 million).

Since 1900 the population age 65 and over has quadrupled. (3 to 12 million).

The LOWEST state maternal mortality rate in 1933 was 4.3.

The HIGHEST state maternal mortality rate in 1947 was 2.6."

Dickinson's main point was that society cannot cope with this improvement rate rapidly enough to suit the social planners. Those proposing more and more security for longer and longer periods, would force Congress into long-range and all-inclusive measures of the type which, they think, would bring America up to the present level of medical advancement. Dickinson declares:

"It is the disturbing premise of the practice of medicine that the doctor cannot win. Let's say that when he saves a woman in childbirth he just adds her name to the list of potential victims of cancer years later. Let's say the patient saved is a laboring man with pneumonia; all the doctor does is to add one more name to the list of potential candidates for heart disease. The doctor

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cannot win! Those who study these problems must come to understand the limitations on medical practice. They must understand that there are limitations on medical progress itself. The doctor can *only* change the age and cause of death. Medical care can never be adequate, despite the fact that the term 'adequate' is used by those who seek to decide who and how and where and why medical care will be provided.

"There is no adequate medical care for the family of a dying man. But the quest for better health, for longer life, for improved medical care will never end—it will go on and on. All that medical care can become is better. We are not talking about a black and white question. We are talking about a problem in which there are only shades of grey. We can only improve; we cannot perfect."

Dickinson concludes, saying:

"The fundamental question underlying all of this discussion today, as I see it, is simply this: What kind of a standard of social morality do you want in this country? That is the basic issue. Do you want this exploitation of youth, do you want to fasten yourselves on the paychecks of youth and ride piggy-back . . . to the grave, or do you want to pay your own way? Many years ago when we became old enough to vote, we faced a world in which we knew that there was ahead of us a lifetime of working, earning, and saving. . . . Do we want to press down upon the brow of our own youth this crown of security thorns? Health progress has given us the voting power."

SECURITY—FOR ALL?—FOREVER?

More security, for more people—even for babies who could theoretically retire at birth—is not beyond feasibility in the eyes of a clever economist. Writing to Charles E. Bradley, Ph.D., of the AMA Bureau of Medical Economic Research, he suggests:

"Every new-born child in the United States would receive from the Government a promissory note for \$20,000 at 3 per cent interest, payable in 20 years.

"The 3 per cent would return \$50 monthly to go to the child's parents until the child is 20.

"Each year during the 20 years, the Government would pay \$1,000 into a sinking fund for the retirement of the note; and, when the child reached the age of 20, the Government would give him or her the \$20,000 it had paid into the sinking fund.

"Boys and girls of 20 who elected to get married would thus have a capital of \$40,000 to care for them, without work, for the remainder of their lives."

The writer carried this sort of thing much further, increasing benefits through government aids and schemes. Although exaggerated, his "dissertation" shows the extent to which his opponents, the socialistic planners, could carry their

thinking. It sounds fine, full of years of "free" security, but in the practical application of the theory, would lead to a flagrant infringement on the rights of Americans to earn their own living, accumulate private property, and work out their own problems. Utopia such as suggested by this writer, is an actual insult to the American spirit of free competition. Its impossibility and impracticability is seen clearly in a definition from "The Comma": "Utopia: The conditions that will prevail when Americans enjoy 1949 wages, 1926 dividends, 1932 prices and 1910 taxes."

FOREFATHERS WARNED OF TOO MUCH SECURITY

Too much security means too much government spending; Americans are constantly giving more and more money to government, which in turn means less and less for the individual. Lincoln expressed it this way:

"Property is the fruit of labor; property is desirable; is a positive good in the world. That some should be rich shows that others may become rich, and hence is just encouragement to industry and enterprise. . . . Let not him who is houseless pull down the house of another, but let him labor diligently to build one for himself, thus by example assuring that his own shall be safe from violence. . . . I take it that it is best for all to leave each man free to acquire property as fast as he can. Some will get wealthy. I don't believe in a law to prevent a man from getting rich; it would do more harm than good."

Thomas Jefferson's agrarian philosophy included criticism of too much government interference and piling up of a large public debt. He said:

"I place economy among the first and most important virtues, and public debt as the greatest of dangers to be feared. . . . To preserve our independence, we must not let our rulers load us with perpetual debt. . . . We must make our choice between economy and liberty or profusion and servitude."

Another revered forefather recognized, too, that socialism is a doctrine of futility—an acceptance of mediocrity. Benjamin Franklin warned:

"They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety."

The Figures Show—

Gigantic government spending is now unprecedented. *The Journal of the Kansas Medical Society* quotes enlightening statistics on the scope of

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phenomenal federal budget figures compared to ordinary values:

"If all the money in this bountiful nation was divided equally, your share would be \$182.58. But your share of the national debt is \$2,875.

"If everyone in the United States cashed in all his life insurance policies it would bring in 44 billion dollars—less than enough to run our federal government for one year.

"If every farmer sold his farm, his farm equipment and his livestock the total would be 25 billion dollars—less than enough to operate the federal government for seven months.

"If Kansas sold everything at its assessed valuation and gave the entire proceeds to the federal government, it would operate our country a little more than one month."

Compared with our national income, the federal debt outstanding in 1929 equaled 19c for each dollar of national income for that year, according to the *Pittsburgh Medical Bulletin*. In 1939, the figure rose to 58c of debt per dollar of income. In 1949, the debt per dollar of income rose to the alarming figure of \$1.15. And all this deficit has been incurred during years of relative prosperity. Common sense would seem to dictate that surpluses should be built up in good times, and that deficit spending to stimulate business activity should be reserved for poor times. If Americans are indifferent to the fact that government expenditures exceed income they may easily fall into what economist Edwin G. Nourse calls "the easy acceptance of deficit as a way of life."

Or in Terms of Time

This deficit spending situation is given added emphasis by a comparison, in terms of time, of free American and socialistic British values. The average American factory worker must work about 8 minutes to earn enough to buy five pounds of potatoes, or a quart of milk, or a package of cigarettes. In London, the average English worker must work 14 minutes for the potatoes, 19 minutes for the milk, and 1 hour and 20 minutes for the cigarettes.

Here are a few more items:

	America	England
3 lbs. sugar.....	11½ minutes	28 minutes
1 pair of overalls.....	3 hours	8¾ hours
20 gal. gasoline.....	3½ hours	15½ hours
1 pair of women's shoes	4 hours	16¼ hours

And yet intelligent Americans are being urged to adopt some plans similar to England's social-

ism. To-the-point comments on this comparison come from the *Pittsburgh Medical Bulletin*:

"We American husbands are grateful, indeed, that we don't have to buy the little woman's shoes in England; it seems bad enough here.

"Isn't it insulting to our intelligence and the intelligence of our laboring men to have our heads of government urge us to adopt the socialistic plans of England?"

"If wide publicity were given to the above statistics—in our newspapers, our union publications and trade journals, our government wouldn't have a chance of discarding our free enterprise system for socialism."

SHORT-SIGHTEDNESS MAY BE GREATEST DISADVANTAGE

The *Industrial News Review* has placed the emphasis in the right place by warning that there is great danger in a mere fight against socialized medicine, socialized grocery stores or the single socialization of any profession or business. It says:

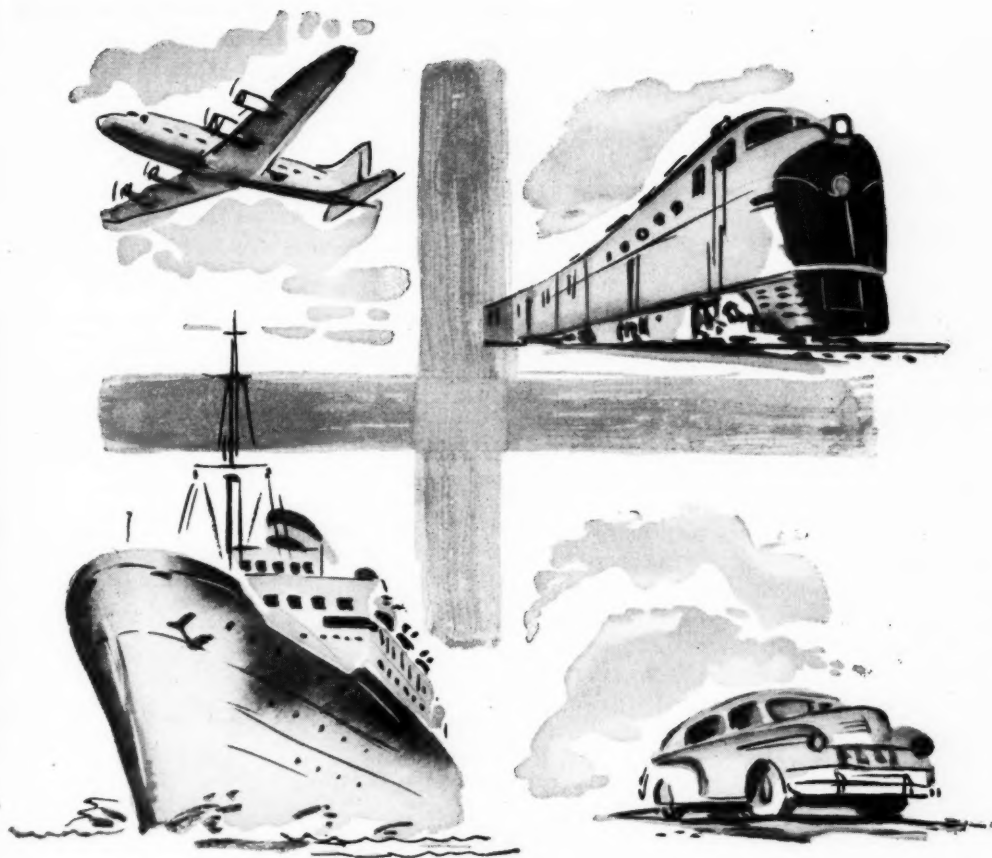
"It may be that the greatest danger is short-sightedness. The man who runs a store may feel, for instance, that government ownership of some great industry, such as electric power, is of small moment to him. The man who works in a factory may see no personal menace in a law that would give the government broad controls over doctors. A labor leader may welcome more and more governmental domination of industrial leaders with whom he has differences. This is the way dictatorship comes about. One group is taken over at a time, while the other groups stand by and argue that it's no affair of theirs. Then, when it is too late, we find to our horror that we're all in the same boat. . . . The road to statism is marked with cheerful signs—human welfare, a better life for the masses of people, security against everything."

Divide and conquer is excellent strategy. It swallows its victims before they know they're bitten.

FEDERAL GOVERNMENT IS A BIG BUSINESS

The federal government is an ever-increasing competitor with free enterprise. According to Samuel B. Pettengill, columnist, radio commentator and former congressman, the government now operates light and power plants, builds and rents houses, "buys potatoes that rot and butter that turns rancid." In a speech delivered in Chicago recently, he enumerates government businesses:

(Continued on Page 388)



Airsickness, trainsickness, seasickness, carsickness—all respond
to treatment with Dramamine (brand of dimenhydrinate.)

DRAMAMINE* — for the Prevention and
Treatment of Motion Sickness. *Trademark of G. D. Searle & Co.



RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

(Continued from Page 386)

"It is in the banking business, financing even such things as race tracks, beauty parlors and soda fountains.

"It is heavily in the insurance business for war veterans and their dependents.

"It is in the peanut, wheat, cotton, beans, turpentine, turkey and wool business.

"It owns at least two railroads, barge lines, merchant marine ships.

"It smelts metals, refines sugar, proposes to build steel plants.

"It operates scores of hospitals and hires doctors, dentists, oculists, and surgeons.

"It is in the business of fixing wages, pensions, prices, profits, interest rates and dividends.

"It proposes to finance public education from the kindergarten through college and look after everybody from the cradle to the grave."

It's a Question of Social Welfare

All this is done in the name of social welfare. Social welfare in itself is not particularly harmful. It is the method by which it is obtained that is of primary concern to all Americans who enjoy their freedom and want to continue to enjoy it. Many Americans have spoken out on this matter with wisdom and sincerity. Among them is Herman W. Steinkraus, president of the Bridgeport Brass company and spokesman for the United States Chamber of Commerce. Speaking on the Town Meeting of the Air on January 24, 1950, he said:

"I believe in social welfare, yes, but not government-owned, propelled, controlled social welfare. I believe in social welfare that doesn't choke the individual initiative; that places a responsibility on the citizens, on the community, and on the states; one where the federal government steps in to help only when private and local efforts are not enough; where money is given only when needed and not handed out to any group, regardless of their individual hardship or prosperity.

"The best thing we can do to give true social welfare to our people is to encourage thrift, give incentives for greater production and lower prices, to stimulate business growth and more job opportunities, to get our country on a sound financial basis, and let the dollar be worth a dollar. If we can't do it now, then when in heaven's name are we going to start?

"We all know the American system has given the greatest social welfare any people have enjoyed in the world's history. Socialism is the road to bankruptcy, a wrecked nation, and complete government control. The welfare state is on the same road.

"Remember what Lenin said in Russia: 'We shall force the United States to spend itself into destruction.'

"I say, let's be wise. Stop, look, and listen. Let's not believe government can do all these things for us without all of us having to pay for them and losing our freedom, too."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

Saint Paul Woman Pays \$500 Fine Imposed for Violation of Federal Pure Food and Drug Act

Re. United States of America vs. Carrie Grace Colwell, also known as Mrs. J. H. Colwell, trading as the Colwell Radium Company.

On February 23, 1950, Mrs. Carrie Grace Colwell, sixty-eight years of age, 257 Johnson Parkway, Saint Paul, Minnesota, paid a fine of \$500 in the United States District Court at Saint Paul, Minnesota. Mrs. Colwell had been convicted by a jury on December 1, 1947, on four counts of violating the Federal Food, Drug and Cosmetic Act. On December 16, 1947, Mrs. Colwell was sentenced by Judge Dennis F. Donovan to pay fines totalling \$500 and she was placed on probation for two years. The charge against Mrs. Colwell was that she had shipped drugs in interstate commerce that were misbranded and mislabeled. The charges grew out of the shipment of so-called "radium ore" that was represented as being efficacious in the treatment of cancer, tumors, poliomyelitis, Bright's disease, liver disorders and numerous other conditions. During the two years that Mrs. Colwell was on probation, she did not pay her fine. Accordingly, on December 15, 1949, her probation was continued for three additional years. On February 15, 1950, a warrant was issued for Mrs. Colwell's arrest for violating her probation by not reporting to the probation officer. On February 23, 1950, Mrs. Colwell paid the \$500 fine. On March 6, 1950, Judge Donovan signed an order terminating Mrs. Colwell's probation.

ALAS, A LACK!

(Continued from Page 383)

ing as is their scientific requisite. Equipped with a knowledge of the past, the opportunity to impart this knowledge to the students at bedside clinics and conferences would enrich the student and stimulate him toward a more vital concept of his work.

The undergraduate of today is as much a hero worshipper as was the student of fifty years ago. He usually picks out, consciously or unconsciously, a member of the faculty whom he imitates as much as possible. If this professor has a cultural attitude in his teaching, the student will readily seek his fill of humanistic values. Without this cultural side of medicine, the danger to the young recruit might very well be that his practice will be mechanical, unhuman, depraved to a "business" level. The medical schools of today lack pitifully this fundamental in pedagogy.

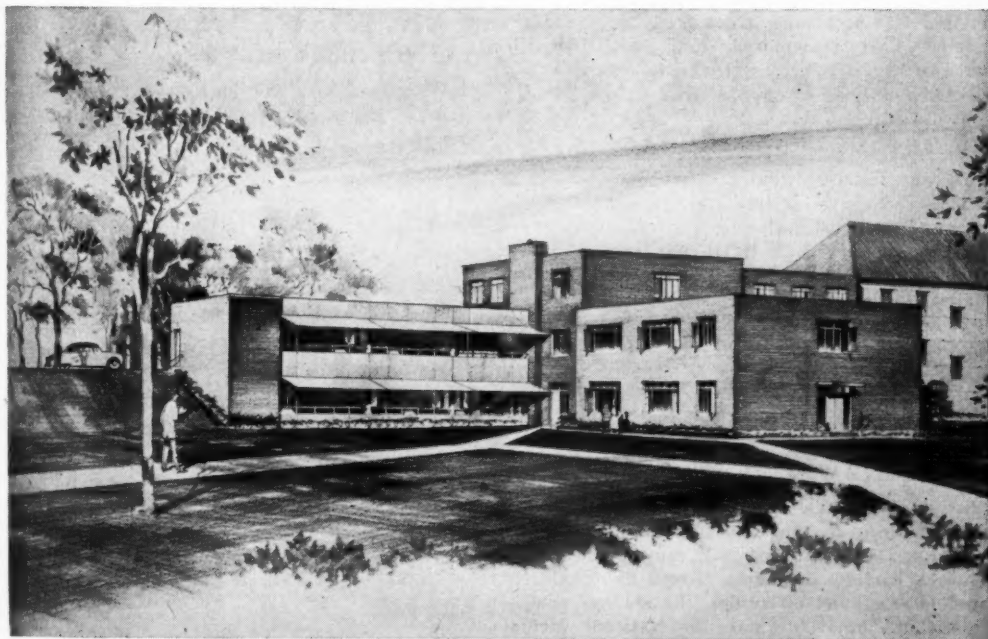
H. L. U.

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Governor Luther Youngdahl formally opened and dedicated our neurologic center and opened the doors to the public on February 12, 1950, thereby offering the following new services:

- 1) treatment of the hemiplegic patient
- 2) multiple sclerosis
- 3) retraining of speech disorders
- 4) paraplegia and other paralyses
- 5) ataxias



Qualified neurologists and neurosurgeons staff this center. The staff also includes qualified personnel who have been trained in special therapy, occupational therapy, corrective therapy and physical therapy.

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♦ Reports and Announcements ♦

STATE MEETING

The annual meeting of the Minnesota State Medical Association will be held in Duluth, June 12, 13, 14, 1950.

A symposium on "Advances and Investigation in Surgery of the Heart" and one on "New Advances in Treatment of Joint Disease" centering around cortisone, ACTH and gold salts will take place. Wednesday will be largely devoted to considerations of atomic energy, the afternoon being devoted to a conference on "Atomic Energy in War and Peace" open to the public.

The Northwest Pediatric Society is sponsoring Dr. Armand J. Quick, of the Marquette University School of Medicine, who will speak on "The Common Hemorrhagic Diseases of Childhood." The Arthur H. Sanford lectureship in pathology will be given by Dr. Ancel Keys, whose subject will be "The Diet and Cardiovascular Disease." Presenting the Russell D. Carman memorial lecture will be Dr. Eugene Pendergrass, Professor of Radiology at the University of Pennsylvania.

AMERICAN BOARD OF OPHTHALMOLOGY

Candidates for the certificate of the American Board of Ophthalmology are accepted for examination on the evidence of a written qualifying test. Applications are now being accepted for the 1951 written test and will be considered in order of receipt until the quota is filled. Practical examinations for acceptable candidates in 1950 will be held in Boston from May 22 to 26, in Chicago from October 2 to 6, and on the west coast in January, 1951. Further information can be obtained from the executive office of the board, 56 Ivie Road, Cape Cottage, Maine.

MENTAL HEALTH WEEK

With approximately half the hospital beds in the United States at any one time occupied by the mentally ill, and with at least half the patients of all physicians having complaints caused by or closely related to emotional difficulties, the medical profession has an important stake in National Mental Health Week, April 23-29, according to Dr. Burtrum C. Schiele, University of Minnesota Professor of Psychiatry.

An important development is the training of medical students in comprehensive medicine, with the integration of psychiatry and medicine of vital significance, according to Dr. Schiele. "All medical students should be aware of the possible relationship between life situations, personal factors and emotions in physiological upheavals and disturbances."

Mental Health Week is sponsored nationally by a broad group of organizations headed by the National Committee for Mental Hygiene, the National

Mental Health Foundation, the National Institute of Mental Health, the American Psychiatric Association, and the Junior Chamber of Commerce. The Minnesota Mental Hygiene Society is co-ordinating activities within the state, with the assistance of the Minnesota Department of Health, the State Division of Public Institutions, and other state agencies.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club, Saint Paul, on March 14. The scientific program consisted of the presentation of two papers: "Psychiatry in Geriatrics" by Dr. Walter P. Gardner, and "The Electroencephalogram in Brain Tumors" by Dr. Philip K. Arzt.

CRIPPLED CHILDREN CLINICS

The spring clinic schedule for crippled children, prepared by the Division of Social Welfare, Medical Services Unit, is as follows (clinics have already been held at St. Cloud, Austin and Detroit Lakes):

Place	Date	Building	Counties
Worthington	April 15	Graffle School	Nobles Jackson Pipestone Cottonwood Murray Rock
Grand Rapids	April 22	Senior High	Itasca Cass
Thief River Falls	April 29	High School	Pennington Marshall Red Lake Roseau Kittson
Faribault	May 6	High School	Rice, Carver Goodhue, Scott Steel, Dakota
Brainerd	May 13	Franklin Jr. High	Crow Wing Wadena Mille Lacs Todd, Cass Aitkin
Morris	May 20	High School	Stevens, Grant Pope, Traverse Douglas Bigstone
Moose Lake	May 27	High School	Aitkin, Cook Carlton, Lake Pine
International Falls	June 3	Alexander Baker School	Koochiching Lake of Woods

COURSE IN ENDOCRINOLOGY

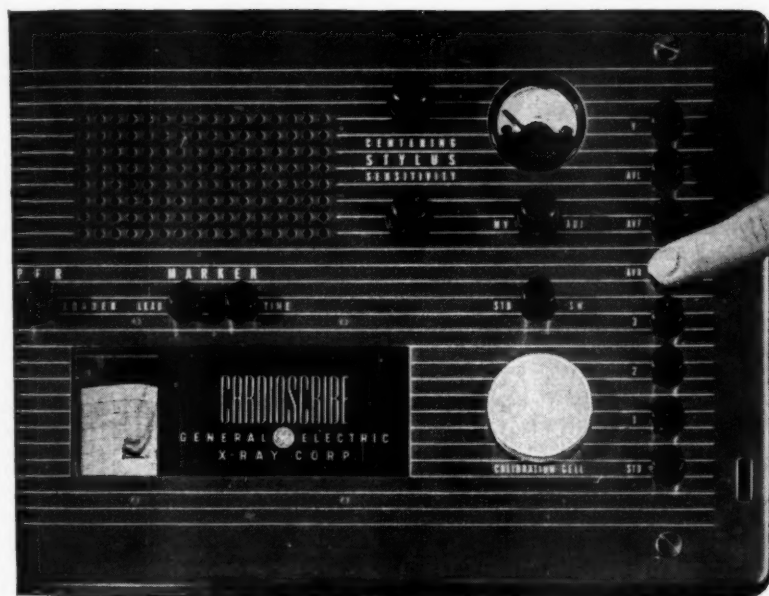
A postgraduate course in endocrinology will be held by the American College of Physicians at the La Salle Hotel, Chicago, Illinois, from May 15 to 20.

The course will provide an intensive review of recent developments in the field of endocrinology, devoting a considerable amount of time to the clinical uses of ACTH and cortisone and related steroids. Special attention will

(Continued on Page 392)

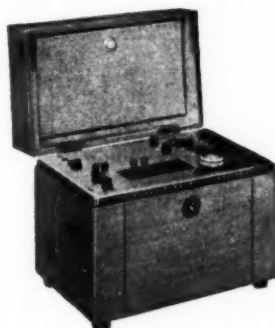
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Portability — Compact, and entirely self-contained in blond mahogany cabinet.

REPORTS AND ANNOUNCEMENTS

COURSE IN ENDOCRINOLOGY

(Continued from Page 390)

be paid to clinical disorders. Instructors from all areas of the United States and Canada will participate in the course, which will consist of lectures, round-table luncheon discussions and presentations of patients.

Fees for the course will be \$30 for members of the American College of Physicians and \$60 for non-members. Further information can be obtained by writing the director of the course, Willard O. Thompson, M.D., 700 North Michigan Avenue, Chicago 11, Ill.

CONTINUATION COURSE

A continuation course in proctology will be presented at the Center for Continuation Study of the University of Minnesota from May 22 to 27. Dr. George Thiele of Kansas City will be the visiting faculty member for the course and will discuss "The Relationship of Anorectal Diseases to General Medical Problems" and "Office Management of Common Proctologic Complaints."

Throughout the course, emphasis will be placed on anorectal and colonic lesions most frequently seen by practicing physicians. The presentation will be by means of lectures, operative clinics, motion pictures, and seminars. Faculty for the course will be made up of clinical and full-time members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

SEMINAR ON PSYCHOSOMATIC MEDICINE

Three seminar lectures on psychomatic medicine in two Minnesota areas are scheduled for April—

the month in which National Mental Health Week falls. National Mental Health Week is scheduled for April 23-29 and is sponsored nationally by a broad group of organizations headed by the National Committee for Mental Hygiene, the National Mental Health Foundation, the National Institute of Mental Health, the American Psychiatric Association, and the Junior Chamber of Commerce. The Minnesota Mental Hygiene Society is co-ordinating activities within the state, with the assistance of the Minnesota Department of Health, the State Division of Public Institutions, and other agencies.

Professional groups in the Mankato area will hear two lectures on mental health, one by Dr. Reynold A. Jensen, associate professor of pediatrics and psychiatry, and the other by Dr. C. Knight Aldrich, assistant professor of psychiatry at the University of Minnesota. On April 26, during National Mental Health Week, Dr. Aldrich will speak in the Austin area to physicians, dentists, nurses, and pharmacists.

Mankato's University of Minnesota postgraduate seminar for physicians started February 28. Physicians have been meeting at the Mankato State Teachers College Tuesday evenings at 7:45. Eight consecutive weekly sessions on heart disease, cancer control, and mental health have been scheduled, with the last one held April 25. Faculty members of the University of Minnesota School of Medicine and the Mayo Foundation for Education and Research have spoken to the medical group.

(Continued on Page 394)

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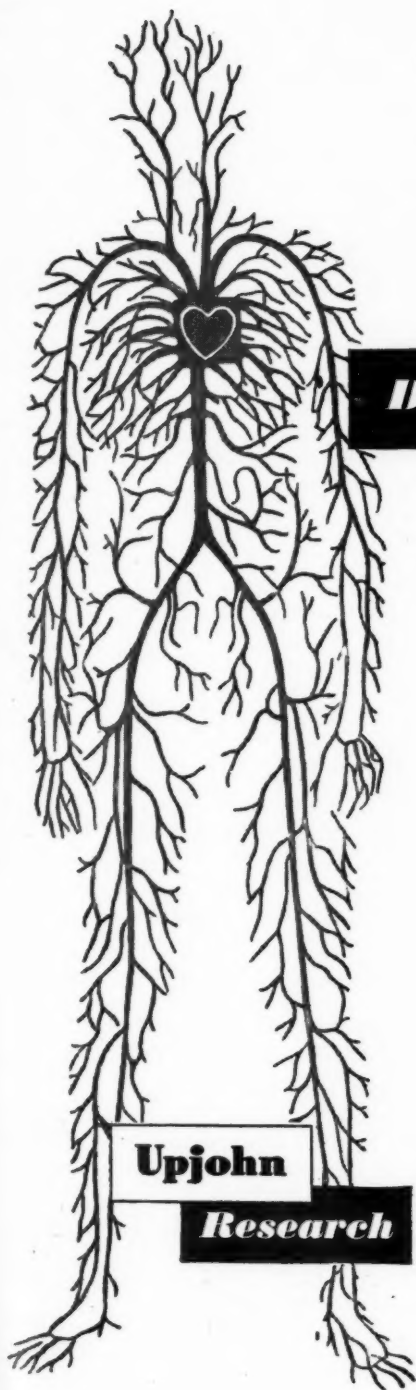
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REPORTS AND ANNOUNCEMENTS

SEMINAR ON PSYCHOSOMATIC MEDICINE

(Continued from Page 392)

The Wednesday evening medical seminar at Austin started March 15 and will conclude May 10. St. Olaf Hospital in Austin has been the site of the eight weekly meetings.

The medical seminars in these two areas have stimulated other professional groups to develop programs devoted to heart disease, cancer control, and mental health as related to the specific professions. Dentists and nurses of Austin and Mankato areas have been meeting for sessions of their own, and then have been joining with the physicians for the last four medical lectures. Pharmacists have been invited to attend those lectures of any group which they feel are of most professional value to them.

Five of the seven seminars offered during the 1949-50 season have already been completed. Bemidji, Fergus Falls, Duluth, St. Cloud and Winona have held professional postgraduate education courses for personnel within their areas.

With the completion of courses now being currently held in Austin and Mankato Minnesota's unique education program will draw to a close this year. Projected on a five-year basis, the program is expected eventually to reach most Minnesota communities.

Seven Minnesota cities will be chosen for similar seminars next year.

Sponsors of the program for physicians have been

the University of Minnesota School of Medicine, the Minnesota State Medical Association, the Minnesota Department of Health, and local professional organizations. Other sponsors are the Minnesota Division of the American Cancer Society, the Minnesota Heart Association, and the Minnesota Mental Hygiene Society.

FREEBORN COUNTY SOCIETY

At a meeting of the Freeborn County Medical Society in Albert Lea on February 23, the principal speaker was Dr. R. W. Ridley, Rochester, who spoke on newer developments in the field of anesthesia.

Society members reported at the meeting that \$1,000 had been contributed to the Naeve Hospital equipment fund. The money had been earned by the society in a school immunization campaign last fall.

HENNEPIN COUNTY SOCIETY

Dr. Reuben F. Erickson, Edina, has been elected president of the Hennepin County Medical Society, to take office on October 2. He will succeed Dr. Robert F. McGandy in the post.

Other new officers of the society include Dr. William R. Jones and Dr. Robert E. Priest, vice presidents, and Dr. George N. Aagaard and Dr. Ralph H. Creighton, members of the board of directors.

RANGE MEDICAL SOCIETY

Dr. Gordon M. Erskine, Grand Rapids, was installed as president of the Range Medical Society at a meeting in Hibbing on February 28. Other officers of the society include Dr. J. A. Malmstrom, Virginia, vice president, and Dr. Robert E. Hansen, Hibbing, secretary.

WASHINGTON COUNTY SOCIETY

The monthly meeting of the Washington County Medical Society was held on March 14. Following dinner and a business session, two colored motion pictures, "Cardiac Arrhythmias" and "Animated Hematology," were shown.

Cook County Graduate School of Medicine ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, two weeks, starting April 17, May 15, June 19.
Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting April 3, May 1, June 5.
Personal Course in General Surgery, two weeks, starting April 17.
Surgery of Colon and Rectum, one week, starting April 10, May 15.
Esophageal Surgery, one week, starting June 5.
Breast and Thyroid Surgery, one week, starting June 26.
Thoracic Surgery, one week, starting June 12.
Gallbladder Surgery, ten hours, starting April 24.
Fractures and Traumatic Surgery, two weeks, starting June 12.
Basic Principles in General Surgery, two weeks, starting September 11.

GYNECOLOGY—Intensive Course, two weeks, starting April 17, June 19.
Vaginal Approach to Pelvic Surgery, one week, starting May 15.

OBSTETRICS—Intensive Course, two weeks, starting April 3, June 5.

PEDIATRICS—Intensive Course, two weeks, starting April 3.

Personal Course in Cerebral Palsy, two weeks, starting July 31.

Personal Course in Diagnosis and Treatment of Congenital Malformations of the Heart, two weeks, starting June 5.

MEDICINE—Intensive General Course, two weeks, starting April 24.

Electrocardiography and Heart Disease, two weeks, starting July 17.

Hematology, one week, starting May 8.

Gastro-enterology, two weeks, starting May 15.

Liver and Biliary Diseases, one week, starting June 5.

Gastroscopy, two weeks, starting May 15, June 12.

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Minnesota Academy of Medicine

Meeting of December 14, 1949

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 14, 1949. Dinner was served at 7 o'clock, and the meeting was called to order at 8:10 by the President, Dr. J. A. Lepak.

There were fifty members and three guests present.

Minutes of the November meeting were read and approved.

Dr. Lepak gave a talk on various phases of the Constitution and By-Laws, also election of new members. It was voted to continue the extra assessment of \$5 per member for 1950. Motions were carried that the Academy vote \$100 to the Litzberg Memorial Fund, and \$100 contribution to the Bell Pathological Museum.

The following officers were elected for 1950:

President.....William Hanson, Minneapolis
Vice President.....William Hengstler, Saint Paul
Secretary-Treasurer..Wallace P. Ritchie, Saint Paul

The scientific program followed.

Dr. Charles Rea presented his paper on "Banti's Disease Treated by Splenectomy and Later by Gastric Resection." (See page 347.)

Dr. Walter P. Gardner, of St. Paul, read his Inaugural Thesis on "Psychiatry in Geriatrics." (See page 353.)

The meeting was adjourned.

A. E. CARDLE, M.D., Secretary

In Memoriam

JOHN DOUGLAS WATSON

Dr. John D. Watson, for many years a practicing physician at Holdingford, Minnesota, died on February 13, 1950.

Dr. Watson was born at Socorro, New Mexico, November 19, 1885. He obtained his education at London, Ontario, in the local high school and at the London Collegiate Institute. His medical degree was obtained at the University of Western Ontario at London, Ontario, in 1907. After taking postgraduate work at the Fort Douglas Army Hospital at Salt Lake City he practiced at Welton, Iowa, from 1907 to 1915.

Dr. Watson was a member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations.

Dr. Watson is survived by his widow; a daughter, Mrs. Peter Holliday of Chicago; a son, Dr. William J. Watson of Saint Paul and a brother, Dr. A. M. Watson.

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Woman's Auxiliary

NATIONAL OFFICER ADDRESSES STATE AUXILIARY

Mrs. Paul C. Craig, Reading, Pennsylvania, representing the national board of the Woman's Auxiliary to the American Medical Association, urged Minnesota doctors' wives to become familiar with the many health bills pending in Congress, so they could "give facts and thus help people form an opinion based upon facts."

Mrs. Craig spoke at the mid-winter board meeting and luncheon of the Woman's Auxiliary to the Minnesota State Medical association February 23, at the Minnesota Club in St. Paul. She paid tribute to the public service activities of the state medical association and its auxiliary for their use of Regional Health Days to develop community responsibility.

In discussing current legislation, Mrs. Craig emphasized that the medical profession must oppose those bills which it considers damaging to health progress, but, she added, the medical profession should support "much positive health legislation."

CHRONIC ILLNESS BEING STUDIED

She noted that the problem of the chronically ill is one of the unsolved medical problems of modern life. A commission for the study of this problem has been set up by the AMA, the American Public Welfare asso-

ciation, the American Public Health association and the American Hospital association. A grant of \$25,000 from the AMA is supporting this project.

"It is not well known," Mrs. Craig stated, "that the chronically ill are not covered in the omnibus compulsory tax medical care program supported by the federal government."

VOLUNTARY PLAN INCREASE SCORED

Mrs. Craig, wife of a Reading, Pennsylvania, ophthalmologist, called attention to the rapid development of all types of voluntary health insurance plans throughout the country. She informed auxiliary members, that on the basis of growth, by the end of 1950, 77 million persons will be covered for hospital bills, 50 million will be insured against surgical costs and 21 million will be insured against medical costs, using the varied types of voluntary insurance now available in this country.

Discussing a recent fifteen month study of medical services done in New York state, Mrs. Craig pointed out that "the pressing need is not for additional facilities but for improving diagnostic services and in modernizing old buildings." The survey concluded that additional state aid is needed for mental and tuberculosis patients.

Mrs. Craig stated, "Already in New York 57 per cent of the population is covered by some type of voluntary

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coverage . . . growing rapidly through 1949. On the basis of this expansion in coverage, it is quite possible to enroll up to 85 per cent of the population in Blue Cross, Blue Shield and commercial plans."

Auxiliary members were asked to become familiar with the findings of the Hoover Commission report, and to use this book for book reviews.

Mrs. Craig was introduced by Dr. F. J. Elias, Duluth, president of the Minnesota State Medical association. Dr. Elias praised the auxiliary, saying that it was and is "a major part in our campaign." Citing the difficulty in evaluating the accomplishments of any organization in a program of this type, he gave credit to the auxiliary for its help in three categories: (1) the distribution of pamphlets, (2) opinion guidance which showed up favorably in the Minnesota Poll, and (3) the increase in the number of people covered by Blue Shield, Blue Cross and other voluntary plans.

Nearly 100 women attended the board meeting and luncheon which was open to all state auxiliary members. Mrs. H. E. Bakkila, Duluth, auxiliary president, presided during the meeting. Mrs. Charles W. Waas, 993 Como Blvd., St. Paul, president-elect, was in charge of local arrangements.

HEALTH DAY PLANS ARRANGED

Mrs. S. N. Litman

Another in the series of Health Days, to be held April 14, is being arranged by the Woman's Auxiliary to the St. Louis County Medical Society in co-operation with the medical society, the Duluth Health Council and the Minnesota Department of Health and related organizations. Health Days, initiated by the Auxiliary to the Minnesota State Medical association, have gained national recognition and are being used by other states who realize their value in bringing health problems before interested people in their respective communities.

St. Louis, Cook, and Carlton counties will participate in the Health Day, which is planned for the purpose of bringing to the people an increased awareness of community health problems and ways of meeting them more effectively. Medical talks, discussions, exhibits and motion pictures will be on the day's program in the Spalding Hotel, Duluth.

Mrs. P. S. Rudie, general chairman, is being assisted by Mrs. Harold Wahlquist, health day chairman for the Minnesota State Medical auxiliary, Wallace Fulton of the Minnesota Department of Health, and Mrs. Ruth Hosted, secretary of the Duluth Health Council.

Statesmen and economists all over the world seem to realize the close relation between health and economy, health and social conditions, health and the standard of living.—*WHO Newsletter*, July-August, 1949.

◆ Of General Interest ◆

All Minnesota physicians are invited to submit to MINNESOTA MEDICINE items "of general interest" concerning themselves or their colleagues. To ensure accuracy and completeness, it is suggested that items submitted contain the answers to the age-old newspaper questions: who, what, where, when and (in some cases) why. Only the facts are necessary, since items can be rewritten for consistency of style.

* * *

Dr. John T. Smiley has been appointed by the Minnesota Department of Health to the position of director of Health District No. 6, comprising Anoka, Chisago, Dakota, rural Hennepin, Isanti, Kanabec, rural Ramsey, Washington and Wright Counties. Dr. Smiley was formerly assistant superintendent of Ancker Hospital, Saint Paul, superintendent of the county hospital at Stockton, California, chief of the Bureau of Hospital Licensing and Inspection, California State Department of Health, and chief medical officer of the Ledo Road project in the Burma-India Theater during World War II.

* * *

Dr. and Mrs. J. W. Stuhr of Stillwater recently returned from a two-week visit in California.

* * *

The opening of offices at 1253 Medical Arts Building, Minneapolis, has been announced by Dr. John K. Grotting, who is limiting his practice to plastic and reconstructive surgery.

Dr. Grotting received training in general and plastic surgery at the Mayo Clinic, where he has been for the past four years. He holds a master of science degree in plastic surgery granted by the University of Minnesota.

At a meeting of the Polk County (Wisconsin) Medical Society at Balsam Lake, Wisconsin, on March 16, Dr. William B. Stromme of Minneapolis presented a paper on "Dystocia."

* * *

Dr. Don V. Smith joined the staff of the Blue Earth Medical Center on March 1. A graduate of Northwestern University Medical School in 1943, Dr. Smith served his internship at Cook County Hospital, Chicago, and then served in the Army for two years, part of the time in Japan. He completed a one-year surgical residency at Eitel Hospital, Minneapolis, and then became associated in practice with Dr. George Eitel in Minneapolis. In his new situation in Blue Earth he is associated with Dr. George W. Drexler and Dr. Ralph E. Wenzel.

* * *

Dr. Henry E. Michelson, professor of dermatology at the University of Minnesota Medical School, delivered the Alembert Winthrop Brayton birthday dinner address at Indianapolis on March 9. His subject was "Cutaneous Tuberculosis and Sarcoidosis."

Dr. A. M. Watson of Royalton was one of the chief defense witnesses when the people of Morrison County recently went "on trial" for not doing all they could to improve public health in their own communities. There were twenty-one witnesses in all at the mock trial held in the County Court House at Little Falls. Those for the defense described the many types of health services available to residents of the county, but those for the prosecution made it clear that the people were not using these services fully or effectively, nor doing all they could to sustain, extend and improve them.

The trial was planned by the county nursing service, with help from the district and state offices of the Minnesota Department of Health, and was used to promote an immunization campaign about to start in the county.

* * *

"Effect of Beta Irradiation on Gastric Acidity" was the title of a paper presented by Dr. R. F. Hedin, Dr. W. R. Miller and D. G. Jelatis, Sc.D., at a meeting of the Central Surgical Association in Chicago on February 16 to 18. Dr. Hedin and Dr. Miller are associated with the Interstate Clinic in Red Wing.

* * *

Members of the Sedgwick County Medical Society, meeting at Wichita, Kansas, on March 2, heard Dr. Albert V. Stoesser, Minneapolis, speak on "Uses and Abuses of the Antihistamines."

* * *

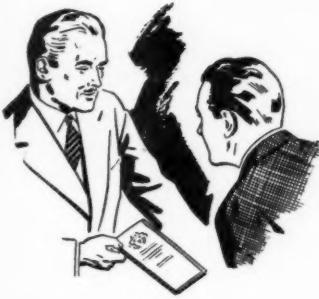
The directors of the Passano Foundation have announced that its award for 1950 will be a dual one, the \$5,000 cash award going to Dr. Edward C. Kendall and Dr. Philip S. Hench, both of the Mayo Clinic, for their studies in clinical physiology as related to the administration of cortisone and related hormones. The award will be presented at the annual award dinner, held this year at the St. Francis Hotel in San Francisco on June 28, during the week of the A.M.A. annual meeting. The Passano Foundation was established in 1943 by the Williams and Wilkins Company, medical publishers, to aid in the advancement of medical research.

* * *

It was announced on March 3 that Dr. Gordon W. Franklin planned to visit Northome to look over facilities for both office and living quarters. He planned, it was said, to begin practice in Northome in July, following completion of his internship. Northome has been without the full-time services of a physician for two years.

* * *

Dr. Nels Strandjord of the Lenont-Peterson Clinic, Virginia, gave a talk on congenital heart disease at a meeting of the Virginia Lions Club on March 1.



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Dr. Gordon Kamman, Saint Paul, was the principal speaker at a meeting of the Stearns-Benton County Medical Society in St. Cloud on March 14. The title of his address was "The Present Status of Shock Therapies and Psychosurgery." Earlier in the month, Dr. Kamman gave the eighth and final lecture of the eight-week seminar on heart disease, cancer and psychosomatic medicine held in Duluth.

* * *

The recently constructed Litchfield Clinic building was opened to the public during the first week of March. The one-story modern-designed building houses the offices of Dr. Harold E. Wilmot, Dr. Cecil A. Wilmot, Dr. Donald E. Dille and Dr. W. A.

Chadbourn. In addition to providing three rooms for each physician, the structure contains a minor surgery room, x-ray room, laboratory, library and drug room.

* * *

Dr. Alson E. Braley, a former resident of Lake Mills, has been appointed professor and head of the department of ophthalmology in the University of Iowa College of Medicine.

* * *

Dr. A. B. Baker was a speaker at the general meeting of the Saint Paul Branch of the American Association of University Women in Saint Paul on March 7. Dr. Baker, professor and director of the

OF GENERAL INTEREST

division of neurology at the University of Minnesota, spoke on "Study, Treatment and Diseases of the Nervous System." He also showed the motion picture, "The Journey Back."

* * *

Among Minnesota physicians attending the second annual scientific assembly of the American Academy of General Practice, held in St. Louis, February 20 to 23, were Dr. O. B. Fesenmaier, New Ulm; Dr. Roger G. Hassett, Mankato, and Dr. J. Earl Schroepel, Winthrop.

* * *

Dr. Donald E. Stewart, of the Northwestern Clinic, Crookston, attended a three-day cancer-detection clinic at the University of Minnesota during the middle of February.

* * *

Cancer research funds totaling \$61,071 have been granted to the University of Minnesota for the year beginning July 1, it was announced early in March.

* * *

The dangers of socialized medicine were described by **Dr. Willard Akins** of Red Wing in a talk given at a meeting of the Men's Club of the First Lutheran Church in Red Wing on February 27.

* * *

Dr. Ruth E. Boynton has been named president of the State Board of Health, succeeding Dr. T. B. Magath, who recently resigned. Dr. Boynton has served as director of the Students' Health Service at the University of Minnesota since 1936 and has been professor of preventive medicine and public

health since 1938. She has been a member of the State Board of Health since 1939 and served as president of it in 1945.

* * *

Dr. Francis J. Crombie has opened new offices at 1234 Division Street, South St. Paul. The interior of the building at that address has been completely remodeled and partitioned into ten rooms. All rooms have been sound-proofed and redecorated. The offices include examination rooms, x-ray room, minor surgery room, nurse's office, and a large reception room.

* * *

Dr. S. A. Slater, Worthington, attended a two-day meeting of the board of the National Tuberculosis Association in Chicago on February 3 and 4.

* * *

On February 19 the engagement of Miss Angela Marie Jelinek to **Dr. Louis B. Kucera** was announced. Miss Jelinek is a resident of Saint Paul, and Dr. Kucera is a former resident of Owatonna. The wedding will be held in the fall.

* * *

Dr. Malcolm Hargraves, Rochester, was the principal speaker at a meeting of the Martin County Conservation Club in Fairmont on February 14. Dr. Hargraves, well known for his conservation work, is a past president of the Minnesota chapter of the Izaak Walton League.

* * *

In a talk before the **Hennepin County Medical Society** on March 6, a Scottish surgeon, T. H. Craw-

(Continued on Page 404)



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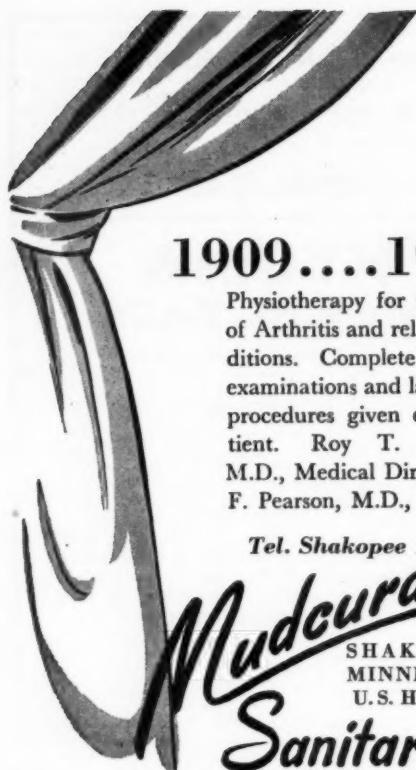
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(Continued from Page 402)

ford Barclay, said that the patient, the general practitioner and the specialist are all unhappy under socialized medicine in Britain. Mr. Barclay—to use the British method of referring to surgeons—said that the patient feels he is not given enough time, the general practitioner is overworked and underpaid, and the specialist is “under the thumb” of the government, with the government refusing to promote younger specialists to adequately paying positions. Mr. Barclay described one London physician who was forced to see 150 patients in five hours; and he stated that tuberculosis is one of Britain's major problems, since not enough facilities are available for housing the numerous infected persons.

Mr. Barclay holds a one-year United States Public Health Service fellowship, and he is now studying at the University of Minnesota.

* * *

At the first 1950 quarterly meeting of the Minnesota Occupational Therapy Association, held in Minneapolis on March 4, Dr. Frederic J. Kottke, of the University of Minnesota department of physical medicine, was the principal speaker.

* * *

Dr. Warren W. Haesly, Wykoff, attended the 100th anniversary convention of the Chicago Medical Society held during the first week of March. While in Chicago, Dr. Haesly also attended the alumni conference of St. Luke's Hospital, Chicago. Both gatherings featured color television demonstrations of surgical operations.

* * *

Dr. and Mrs. Edward A. Colp, Robbinsdale, spent the month of February on a trip through the Rio Grande Valley and Mexico. On his return, Dr. Colp opened new medical offices at 3859 W. Broadway.

* * *

At the meeting of the Scott County board of county commissioners on February 14, Dr. H. M. Juergens, Belle Plaine, was named coroner of Scott County. He succeeds Dr. H. W. Havel, who resigned recently.

* * *

Forty-five members of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons held a two-day mid-winter clinic in Rochester on February 24 and 25. Among speakers at the clinic were Dr. Robert B. Wilson, Dr. James S. Hunter, Dr. Arthur B. Hunt and Dr. John E. Faber, members of the Mayo Clinic section on obstetrics and gynecology.

* * *

Dr. Francis J. Schnugg, Brainerd, was narrator for a motion picture on the heart fund campaign shown at a meeting of the Lions, Rotary and Exchange Clubs in Brainerd on February 15.

* * *

It was announced on February 16 that Dr. Virginia Gross had arrived at the Fergus Falls State Hospital to become a member of the staff. Formerly

MINNESOTA MEDICINE

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of Provo, Utah, she is the wife of Dr. Mackenzie Gross, who became a staff member of the Fergus Falls hospital a short time ago.

"Socialized Medicine" was the subject discussed by Dr. L. W. Morsman, Hibbing, on a broadcast from the Hibbing radio station on February 28.

The work of Dr. Suad A. Niazi, a medical fellow in surgery at the University of Minnesota, was described in "Blueprint for Understanding," a recently published thirty-year review of the Institute of International Education, New York. Dr. Niazi, a physician in the Royal Medical College in Baghdad, Iraq, came to the University of Minnesota Medical School in 1947 under a State Department fellowship administered through the institute. The story of Dr. Niazi, who in 1949 won a Damon Runyan clinical fellowship from the American Cancer Society for further research, was used in the institute's publication as an example of important work being done by foreign students who are studying in the United States.

Dr. Robert R. Remsberg of Tracy took a one-week course in surgery and obstetrics at the Cook County Hospital, Chicago, early in March.

At the annual meeting of the Morrison County Public Health Advisory Board in Swanville on February 7, Dr. Edwin G. Knight of Swanville was elected chairman of the board.

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1. Wühering, W.: An account of the Foxglove, London, 1785.
2. Rimmerman, A. B.: Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. 209: 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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Two Saint Paul physicians discussed "The Effect of Fear on Sex Attitudes," on February 27 at the first of three meetings arranged by the Saint Paul Council of Parent-Teacher Associations. Dr. Charles L. Steinberg, a pediatrician, and Dr. Philip K. Arzt, a psychiatrist, were the principal speakers at the panel discussion, which was open to both parochial and public school PTA units. The series was planned to offer advice to parents concerned about the emotional effect of sex crime publicity on children.

Miss Marjorie Wolfenden, formerly of Granville, Wisconsin, was married to Dr. Edward Zupanc, formerly of Gilbert, in a ceremony performed at Menomonee Falls, Wisconsin, on February 17.

Previous to her marriage, Miss Wolfenden was a nurse at General Hospital Madison, Wisconsin. Dr. Zupanc, a graduate of the University of Minnesota Medical School, recently completed a fellowship in pediatrics at the University of Wisconsin. He is now practicing medicine in Duluth.

Dr. Harold W. Hermann, formerly of Rochester, has begun the practice of pediatrics in Minneapolis. He was graduated from the University of Minnesota Medical School in 1946.

Dr. Robert A. Good, of the University of Minnesota Medical School, was one of twenty medical scientists named for \$25,000 grants from the John and Mary R. Markle Foundation, New York. The

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* * *

At the annual meeting of the Minnesota Mental Health Society in Minneapolis on March 1, Dr. Ralph Rossen, Minnesota mental health commissioner, stated in an address, "It is imperative that each of our state hospitals develop a psychiatric center for its community. Only then will we attract people who need preventative treatment and properly prepared workers to treat them."

* * *

Dr. Charles Vandersluis, Bemidji, attended a four-day clinical session held by the Chicago Medical Society during the first week of March.

* * *

Two physicians were chosen to head the Steele County School Survey Committee at a meeting in Owatonna on February 17. Dr. Benedik Melby, Blooming Prairie, was elected chairman of the committee, and Dr. Edward Q. Ertel, Ellendale, was named vice chairman.

* * *

Dr. C. G. Uhley, Crookston, spoke on socialized medicine at a meeting of the Lowell Farm Bureau on February 20.

* * *

Dr. Joseph Ryan, director of the outpatient department at St. Joseph's Hospital, Saint Paul, was the guest speaker at a meeting of the St. Thomas College Mathematics and Physics Club on February 20. Dr. Ryan, who was formerly associated with the Oak Ridge atomic project, spoke on "Effects of the Atomic Bomb on Human Beings."

* * *

Achievements in fighting Minneapolis health problems and agency activities, as reported to the public through newspaper stories, were described by Dr. Frank J. Hill, Minneapolis health commissioner, at a meeting of the Community Health Service board of directors late in February.

* * *

Open house was held at the newly completed Pine River Clinic on February 11. Constructed by Dr. C. M. Zeigler and Dr. A. T. Rozycki, both of Pine River the clinic is a one-story modern-designed structure, 66 by 24 feet. It houses offices for the physicians, examination rooms, laboratory, x-ray room, reception room and an emergency treatment room.

* * *

Dr. E. J. Lillehei, Robbinsdale, has been named a member of the executive committee at St. Barnabas Hospital, Minneapolis.

* * *

At the meeting of the Saint Paul Surgical Society on February 15, papers were presented by Dr. Charles T. Eginton, Saint Paul, and Dr. Bernard Zimmerman, fellow in surgery at the University of Minnesota. Dr. Eginton discussed "Megacolon," and Dr.



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Zimmerman spoke on "Adrenal Function in the Postoperative Patient."

* * *

Dr. Louis Flynn, Saint Paul, has replaced Dr. William Fleeson, Minneapolis, as consulting psychiatrist at the state child guidance clinic in Fargo. Dr. Fleeson resigned because of the press of private practice in the Twin Cities. Plans call for Dr. Flynn to spend Thursday and Friday of each week at the Fargo clinic.

* * *

Dr. Frank J. Elias, Duluth, was the principal speaker at a meeting of the St. Louis County Medical Society Auxiliary in Duluth on February 14.

* * *

Among those in attendance at the fifth National Conference on Rural Health and Medical Service, held in Kansas City, Missouri, during the middle of February, was Dr. John K. Butler of Carlton.

* * *

Dr. Leonard A. Lang, Minneapolis, gave a talk on "Diagnosis and Treatment of Carcinoma of the Uterus" at a meeting of the Cascade County Medical Society in Great Falls, Montana, on February 17. Dr. Lang is clinical assistant professor of obstetrics and gynecology at the University of Minnesota and chief of the department of gynecology at General Hospital and St. Mary's Hospital in Minneapolis.

* * *

Dr. Walter Alvarez, senior consultant in the division of medicine at the Mayo Clinic, has been ap-

pointed medical editor of "G.P.," a journal published by the American Academy of General Practice. Dr. Alvarez was selected to succeed Dr. F. Kenneth Albrecht, who died following an automobile accident in March.

A graduate of Stanford University Medical School, Dr. Alvarez became associated with the Mayo Clinic in 1926. Having reached the age of retirement in the Mayo Foundation, he is moving to Chicago to carry on his duties as editor of "G.P."

* * *

Dr. Stanley P. Stone, Minneapolis, has moved his offices into his newly constructed clinic building at Lowry and Queen Avenues North.

* * *

A history of socialized medicine was presented by Dr. L. W. Morsman, Hibbing, at a meeting of the Community Club in Brown early in February.

* * *

It was announced early in February that Dr. George Kleifgen of Park Rapids was moving his offices into a newly constructed Medical Arts Building in Park Rapids. Dr. Kleifgen, who has practiced in Park Rapids for ten months, has taken three years of postgraduate training in surgery at the Mayo Clinic.

* * *

Rochester's new public health center was opened to the public on March 6. The only complete pub-



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lic health center in the Midwest, the \$270,000 building houses the Rochester-Olmsted County Health Department and the District 3 office of the State Department of Health. The building, which is dedicated to the memory of Dr. Charles H. Mayo, was financed primarily by a gift from the Mayo Association, an appropriation by the city of Rochester, and a Federal grant. Modern in design, it provides facilities for all the health and welfare activities of the area.

* * *

Dr. Edward S. Rall, a fellow in the Mayo Foundation, was named winner of the American Goiter Association VanMeter essay award on March 9. His essay, which was presented at the Association's annual meeting in Houston, Texas, dealt with the identification of iodine compounds in blood and urine.

HOSPITAL NEWS

Falls Memorial Hospital, International Falls.—At the annual meeting of the medical staff of the Falls Memorial Hospital, Dr. C. C. Craig was elected chief-of-staff, and Dr. Edward B. Kinports was named secretary-treasurer.

* * *

St. Mary's Hospital, Minneapolis, has completed construction work on a new postanesthesia room—a recovery room for patients after operation. Patients are taken to the room following operation and are kept there under the care of a special staff until they have completely recovered from the anesthesia. Equipment is available for immediate action in case emergency treatment becomes necessary. The room was set up under the direction of Dr. Stanley Wesolowski, director of anesthesiology at the hospital.

* * *

It was reported on February 23 that construction work on the new **Renville County Hospital** at Olivia was progressing rapidly. Plans called for construction of partitions and plastering early in the spring.

When it was learned that the project would require an extra \$60,000, a campaign was started in the surrounding villages and towns. By late February cash and pledges had almost totaled that amount.

* * *

The new neurologic center at **Glenwood Hills Hospitals** was officially opened on February 12. The opening day ceremonies were highlighted by talks by Governor Luther Youngdahl, Raymond T. Rasop, hospital superintendent, Dr. Julius Johnson, chief-of-staff, and Raymond Ewald, member of the board of trustees.

* * *

Ways and means for launching a successful campaign for funds for the **Aitkin Community Hospital** were discussed at a special meeting called by the hospital board on March 6. Civic organizations throughout the area sent representatives to give advice on setting up the project.



OF GENERAL INTEREST

BLUE CROSS-BLUE SHIELD NEWS

Blue Shield claims in January totalled 2,575, representing 3,145 medical-surgical services. Blue Shield services rendered at homes accounted for eight claims, services in doctors' offices for 520 claims, and services in hospitals for 2,047 claims.

Surgical procedures accounted for 1,543 Blue Shield services in January, medical for 999 services, and X-ray, anesthesia, and other related services for 603 Blue Shield services rendered in January.

Single subscribers with incomes of less than \$2,000 annually, and family subscribers with incomes of less than \$3,000 annually, who receive unlimited subscriber benefits, incurred 885 claims representing 34.4 per cent of the total claims paid in January. Although this is not the greatest number of claims paid in any one month for unlimited subscribers, it represents the highest percentage of total claims paid in any one month incurred by unlimited subscribers since February, 1948.

Altogether, Minnesotans received \$97,269.47 in Blue Shield medical-surgical benefits during January. Of this amount 94.2 per cent or \$91,628.34 was in payment of claims submitted by participating doctors for services to Blue Shield subscribers, and 5.8 per cent or \$5,641.13 for claims submitted by non-participating doctors.

During the month of February, Minnesota Medical Service Inc., with the approval of the State Insurance department, paid the balance of notes held by doctors. Of the total \$86,000 subscribed and loaned by doctors of Minnesota to assist the Blue Shield plan for working

capital, only about \$20,000 was actually used. The repayment of the total amount of notes to doctors was therefore not a great hardship upon the Association. However, the wonderful response of Minnesota doctors who were willing to underwrite the Plan was most encouraging. We thank you all again.

During January 9,192 Blue Shield applications were made effective, making the total Minnesota Blue Shield enrollment 282,887. Nearly 4,000,000 persons were added to the seventy-six Blue Shield plans in 1949, making a total Blue Shield enrollment of more than 14,250,000 as of December 31, 1949.

The demand for Blue Cross-Blue Shield coverage was clearly demonstrated in the first non-group Blue Cross-Blue Shield enrollment campaign ever to be conducted in Minnesota. The campaign, which began January 1 and closed January 21, brought 22,883 inquiries and 10,362 applications were returned. Over 1,000 persons inquired at the information desk about the new, non-group coverage; 6,164 persons inquired by telephone, and 15,654 persons inquired by mail. On February 10, the final date for acceptance of non-group contracts, over 45 per cent of the people who had inquired about the non-group coverage had sent in their applications. An additional 652 inquiries came from thirteen other states and Canada. These inquiries were referred to their respective Blue Shield and Blue Cross plans in their area.

Minnesota Blue Cross enrollment on January 31, 1950, totalled 989,474. Payments to hospitals during January amounted to \$741,092.03—an increase of \$82,390.51 over the amount paid during January, 1949.



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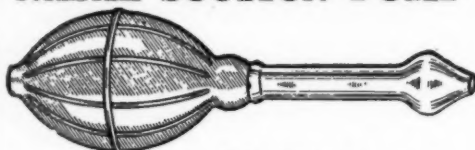
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Across the nation, about 900,000 steel workers and their families will be covered by Blue Cross as a part of the agreements which settled last fall's nationwide steel strike. Approximately 15,000 steelworkers in Minnesota will come under the hospitalization program provided by Blue Cross. A commercial contract was selected by the steel workers covering surgical services. It is hoped that a national contract can eventually be worked out to cover the steelworkers for Blue Shield benefits.

To supply the hospitalization program for steelworkers and their families, Blue Cross plans wrote a contract which, for the first time, offers similar rates and benefits for every employee regardless of where he lives. Ordinarily, employees of nationwide industries are enrolled in their local plans, pay local plan rates and receive local plan benefits. The steel contracts provide a uniformity of benefits and rates which will serve as a model for formulating future Blue Cross agreements in other nationwide industries where uniform coverage of employees may be desired.

Over 36,000,000 persons in the United States and Canada are Blue Cross subscribers.

The annual joint conference of Blue Cross and Blue Shield plans was held in Montreal, Quebec, from February 26 to March 1. Arthur M. Calvin, executive director of the Minnesota plans, was elected a commissioner of the Blue Shield medical care plans representing Minnesota, Wisconsin, Iowa, Nebraska, North Dakota and South Dakota. Dr. A. J. Offerman, president of the Nebraska Blue Shield plan, was also elected a commissioner from this district. Each district is entitled to one commissioner who is a doctor of medicine and one commissioner who is an executive director of a Blue Shield plan.

The conference meetings primarily concerned Blue Cross-Blue Shield policies. Some of the main actions taken involved the Inter-Plan Transfer Agreement. Among other changes, the most important effected the cancelling of contracts held by subscribers who move out of one plan's area into an area served by another participating plan.

Both Blue Cross and Blue Shield Commissions revised their standards for approval of Plans, establishing more definite requirements for Plans to meet financial responsibility as well as non-profit sponsorship and control.

BOOK REVIEWS

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

HANDBOOK OF OBSTETRICS AND DIAGNOSTIC GYNECOLOGY. Leo Doyle, M.S., M.D. 240 pages. Illus. Price \$2.00, flexible binding. Palo Alto, California: University Medical Publishers, 1950.

A CENTURY OF MEDICINE IN JACKSONVILLE AND DUVAL COUNTY. Webster Merritt. 201 pages. Illus. Price \$3.50, cloth. Gainesville, Florida: University of Florida Press, 1949.

UROLOGICAL SURGERY. Second Edition. Austin Ingram Dodson, M.D., F.A.C.S., Professor of Urology, Medical College of Virginia; Urologist to the Hospital Division, Medical College of Virginia; Urologist to Crippled Children's Hospital; Urologist to St. Elizabeth's Hospital; Urologist to St. Luke's Hospital and McQuire Clinic. 855 pages. Illus. Price \$13.50, cloth. St. Louis: C. V. Mosby Co., 1950.

MEDICINE OF THE YEAR. John B. Youmans, M.D., editor, Dean, School of Medicine, Vanderbilt University. 204 pages. Price \$5.00, cloth binding. Philadelphia: J. B. Lippincott Company, 1950.

THE PHYSIOLOGY OF THOUGHT; A FUNCTIONAL STUDY OF THE HUMAN MIND IN ACTION. By Harold Bailey, M.D., F.A.C.S. 314 pages. Price \$3.75. New York: The William-Frederick Press, 1949.

This 314-page book is written by Dr. Harold Bailey, ophthalmologist, living in Charles City, Iowa, a graduate of Rush Medical College in 1897.

The preface states, "We shall limit the text to a consideration of our own ideas, and we shall devote little space to the discussion of views expressed by other writers."

The contents of the book bears out this plan of the author. His ideas, theories, and philosophies, as set forth, show that the author did considerable browsing among philosophic and psychologic books, of which he most frequently mentions William James' "Principles of Psychology."

The language used in the book is semi-popular, but enough technical terms are sprinkled throughout to make it difficult reading for a layman.

The book can hardly be recommended as being of any interest, much less of any scientific value, to a modern physician, psychiatrist, or psychologist.

HEARING TESTS AND HEARING INSTRUMENTS. By Leland A. Watson and Thomas Tolan, M.D. 597 pages. Illus. Price \$7.00. Baltimore: The Williams & Wilkins Company, 1949.

The authors state that the purpose of the book is to provide a comprehensive and primarily practical text on hearing instruments and their application, intended for physicians, nurses, rehabilitation officers, school health officers, hearing aid technicians and those who dispense and fit hearing aids, and presented in a generalized style which avoids a strictly medical or a strictly engineering approach.

The material is presented in six parts, seventeen chapters and 520 pages.

Part I. Background of the audiometer and funda-

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BOOK REVIEWS

mentals of hearing as related to audiometers and hearing aids, of audiometry and of basic audiometric technique.

Part II. Interpretation of audiometric data.

Part III. Technical and engineering aspects of the audiometer.

Part IV. Social aspects of audiometry, including military, industrial, medico-legal and school phases.

Part V. Hearing Aids.

Part VI. Advanced audiometry, including speech hearing tests.

This division of material facilitates ready reference. The book reflects an exhaustive study of the literature on hearing aids and audiometers published since 1939 and a comprehensive knowledge of these subjects. Much material is presented on a wide variety of topics of especial interest to the otologist, such as that on sound proof and acoustically treated rooms for audiometry, the relation between pure tone audiograms and speech hearing tests, the role of the audiometer in military, industrial and medico-legal fields and the economic aspects of the hearing aid industry, such as the extent of the active and potential market, annual sales, cost of hearing aid up-keep and role of the retail dealer.

The bibliography, by author, publication and subject, is exhaustive and usable. There is also a glossary of terms used in audiology, sponsored by the Acoustical Society of America and by the Institute of Radio Engineers, Inc., which is most helpful and covers many subjects, especially engineering, with which the otologist has little or no acquaintance.

The book is profusely supplied with tables and illustrations, including many audiograms, and a general glossary and index. The material is well organized and presented and constitutes a valuable source for reference.

It is the reviewer's opinion that the authors have well accomplished their intended purpose; the book is unreservedly recommended.

CHARLES E. CONNOR, M.D.

BARBITURATE POISONING

(Continued from Page 370)

with the use of inadequate initial doses and neglect to repeat as often as needed."

The dosage of metrazol must be governed solely by the degree of the depression present.

In a review of the literature dealing with the use of massive doses of metrazol for the treatment of barbiturate poisoning, no case was found in which such a large amount of the drug had been administered, although Engstrand and Hruza² reported a case in which 80 c.c. of metrazol had been given in divided doses with complete recovery of the patient.

References

1. Eckenhoff, J. E.; Schmidt, C. F.; Dripps, R. D., and Kety, S. S.: A status report on analectics (report to the Council on Pharmacy and Chemistry). J.A.M.A., 139:780, (Mar. 19), 1949.
2. Engstrand, O. J., and Hruza, W. W.: Metrazol therapy in barbiturate poisoning. Journal-Lancet, 68:59, (Feb.) 1948.

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